AN/URC-78(XE-1)/V FINAL RELIABILITY PREDICTION AND MATH MODELS REPORT

Cincinnati Electronics Corporation

Prepared for:

Army Electronics Command

29 March 1974

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AN/URC-78(XE-1)/V

FINAL RELIABILITY PREDICTION AND MATH MODELS REPORT

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PREPARED BY

CINCINNATI ELECTRONICS CORPORATION

FOR

UNITED STATES ARMY ELECTRONICS COMMAND

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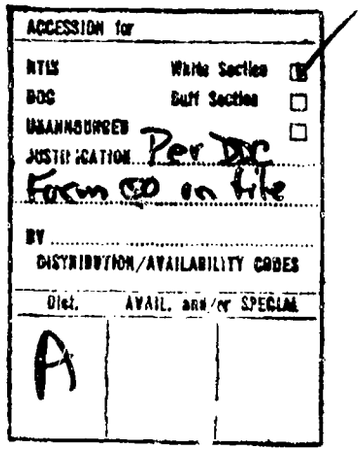
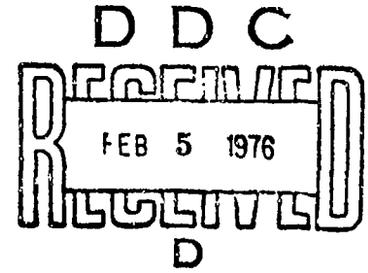
TABLE OF CONTENTS





AN/URC-78(XE-1)/V RELIABILITY PREDICTION

1.0 INTRODUCTION

This report presents the method, bases and results of the final reliability prediction performed on Cincinnati Electronics' URC-78 equipment design. The predicted MTBF for the three system configurations is 9,515 hours for the Manpack, 1,925 hours for the Vehicular and 1,925 hours for the Airborne.

This report updates the 17 July 1973 submittal. It reflects the anticipated design changes needed for the production model.

The description of equipment and operating conditions used are presented in paragraph 2.0, sources of failure rate data in paragraph 3.0, and the reliability model in paragraph 4.0.

2.0 EQUIPMENT AND OPERATING CONDITIONS

The reliability prediction was performed on three system configurations of the Ultra-Reliable VHF-FM equipment. Common to all three systems is the receiver-transmitter. The airborne system contains an additional applique unit and the vehicular system contains a 40 Watt power amplifier, a vehicular antenna, a vehicular applique and the receiver-transmitter. The prediction for the URC-78 system is based on the anticipated production model design.

Operating conditions used for the equipments for prediction purposes were as follows:

(a) Equipment ambient Temperature:

Manpack	- 50°C
Vehicular	- 50°C
Airborne	- 50°C

(b) Resulting part ambient temperature as determined by thermal analysis:

Manpack	- 65°C
Vehicular	- 65°C
Airborne	- 70°C

(c) Equipment operation-continuous with following functional duty cycles:

	Manpack	Vehicular	Airborne
Receive	90%	90%	90%
Transmit	10%	10%	10%
Tune Cycle	0.5%	N/A	N/A
Receive Band Operation	each 30%	each 30%	each 30%
Xmit Band Operation	each 5%	each 5%	each 5%
40 Watt Power Amplifier	N/A	9%	N/A
5 Watt Power Amplifier	N/A	1%	N/A
Guard Receiver	N/A	N/A	80%
Homing Receiver	N/A	N/A	10%

	Manpack	Vehicular	Airborne
Self Test	N/A	N/A	1%
Preset Switch	.5%	.5%	.5%
Secure Transmission	5%	5%	5%
Secure Retransmit	2%	2%	2%
Preset/Manual	75%/25%	75%/25%	75%/25%

The duty cycles shown in the stress analysis sheets were obtained from the above duty cycles. In some cases, duty cycles were combined when the same circuitry was used for two different functions, such as the secure functions operational modes. In these modes the IF crystal filter operational duty cycle is added to the normal operational duty cycle. Many parts have a 100% duty cycle. These are parts to which power is supplied continuously and, therefore, are continuously stressed regardless of the mode of operation. Therefore, the operational duty cycles are masked by the continuous power operation.

3.0 FAILURE RATE SOURCES

The following sources were used for the part failure rates shown on the detailed stress analysis forms in the appendices.

1. All discrete type parts except Established Reliability resistors and capacitors - MIL-HDBK-217A.
2. Varactor Diodes - Cincinnati Electronics Reliability Test Data

3. Hybrid Microcircuits Proposed MIL-HDBK-217B Hybrid Failure Rate Model as Supplied by USAECOM.

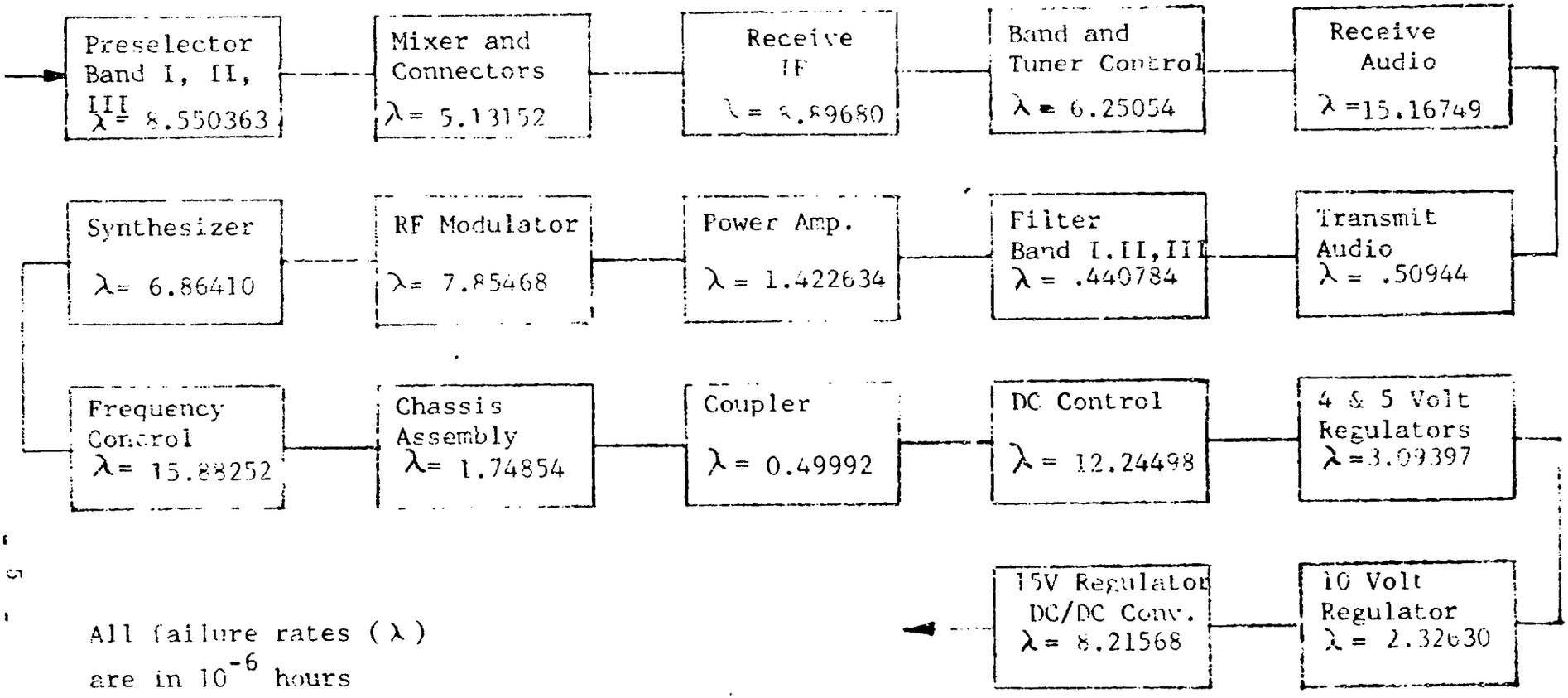
4. Monolithic Integrated Bipolar Microcircuits - RADC-TR-67-108, Volume II and RADC-TR-69-350 (Appendix V).

5. Established Reliability Resistors and Capacitors - MIL-STD-199 and MIL-STD-198, respectively.

6. MOS LSI, MSI and CMOS - USAECOM.

4.0 RELIABILITY MODELS

The reliability models for the three system configurations are shown in Figures II through IV. These models show the equipments as straight series models and assume any one part failure will cause a failure of the equipment to perform its intended function(s). Therefore, the individual functional usage is included in each block failure rate by the duty cycle which the parts associated with the function are stressed. These block failure rates are for the operational duty cycles given in paragraph 2.0. The duty cycle of each part in each block is shown in Appendix I through III to this report which contains the detailed back-up for failure rate determination of each part in the equipments. The blocks in the diagrams are directly related to this detailed back-up by block title.

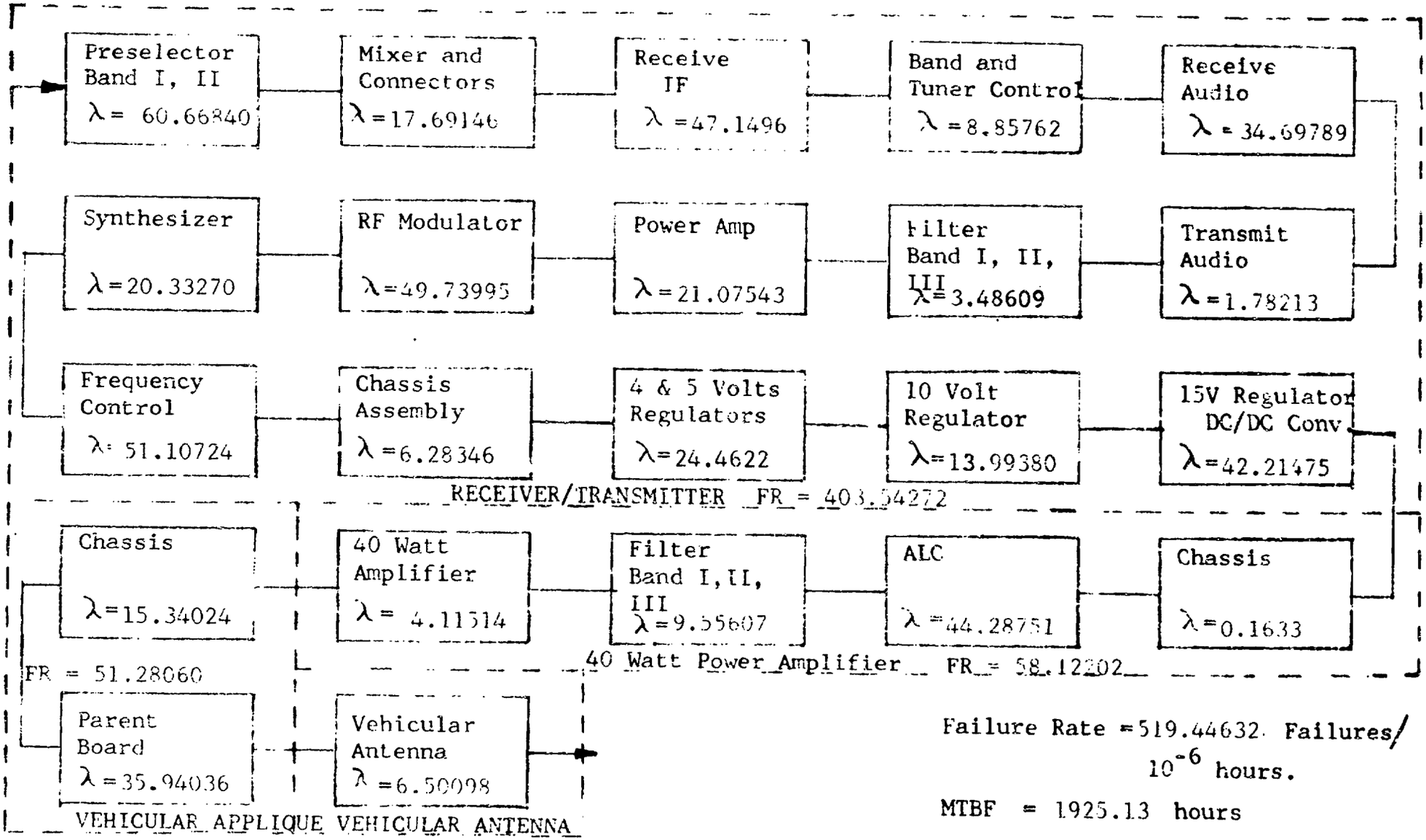


All failure rates (λ) are in 10^{-6} hours

Failure Rate = 105.1003 failures/10^{-6} hours
MTBF = 9514.72 hours

Manpack Configuration

Figure II



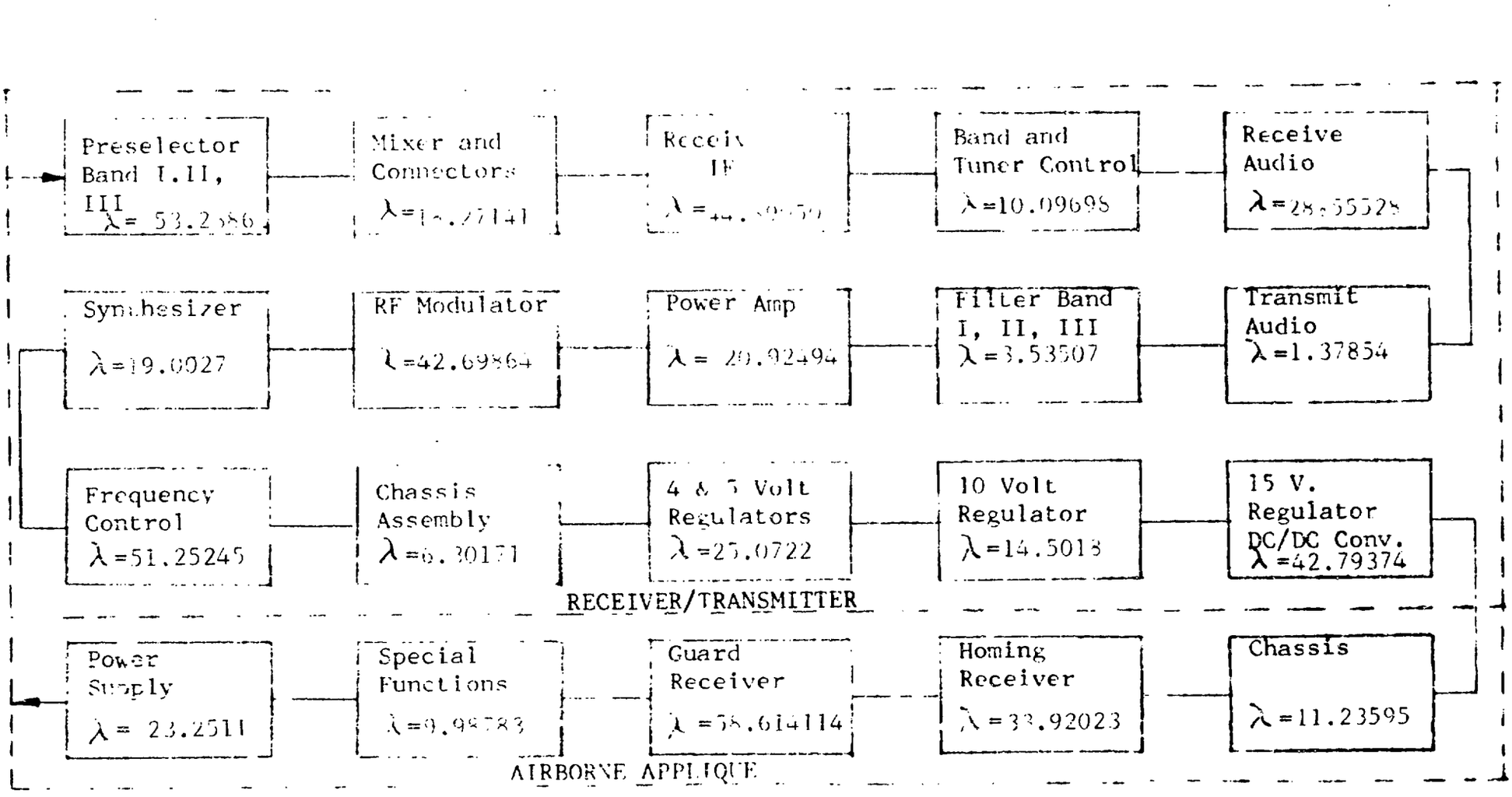
Failure Rate = 519.44632 Failures/ 10^{-6} hours.

MTBF = 1925.13 hours

All failure rates (λ) are in 10^{-6} hours.

Vehicular Configuration

Figure III



All failure rates (λ) are in 10^{-6} hours

Failure rate =519.32285 failure/10^{-6} hours
MTBF =1924.84 hours

Airborne Configuration

Figure IV

5.0 COMMENTS ON RELIABILITY PREDICTION

A comparison of this prediction as calculated in this report with that presented in the "Interim Reliability Prediction and Math Models Report", dated 3 August 1972, is tabulated below for each of the system configurations:

MTBF COMPARISON

	3 August 1972	20 March 1974
Manpack System	9,452 hrs	9,515 hrs
Vehicular System	1,233 hrs	1,925 hrs
Airborne System	1,433 hrs	1,925 hrs

As shown by this comparison, the present predicted reliability for all three of the system configurations exceeds the original predicted reliability which was based on an optimistic conceptual paper design. This is believed to be a noteworthy accomplishment since Cincinnati Electronics' experience in past radio developments has shown that the design concepts usually envisioned for an equipment at the start of a development program have a nasty habit of growing in complexity during development resulting in a lower MTBF than initially predicted. It is recognized that this predicted MTBF is not necessarily the "proof of the pudding"; however, the unique reliability program followed for this development, which maintained a constant awareness on the need for a highly reliable, low life cycle cost

equipment on all cognizant design and management personnel, has resulted in an equipment which exceeds its original design expectations.

Table I is a list of the major part types contained in the equipment versus the total failure rate per part type and the percentage of the total failure rate represented by that particular part type for each of the equipment configurations. For the manpack configuration of the equipment, the highest failure rate components are the hybrid circuits, which make up approximately 43% of the total failure rate. However, in the other two configurations of the equipment, this percentage is reduced to approximately 16% to 17%. As shown in the appendices to the report, hybrids and many other part failure rates are based on the use of screened or established reliability parts. However, for the vehicular and airborne configurations of the equipment examination of Table I shows other part categories, with failure rates that are not based on screened or established reliability type parts, are equal to or exceed the hybrid circuit failure rate. For example, the percentage of total failure rate in the vehicular and airborne configuration for inductors is 16.6% and 18.75% respectively. Both exceed the hybrid circuit failure rate percentage of 16.35% and 17.76%. This strongly suggests that selective screening of certain part types would be a valid method for reliability improvement. However, implementing this

TABLE I - PART TYPE FAILURE RATE PERCENTAGE OF TOTAL

	Manpack		Vehicular		Airborne	
Part Type	FR x 10^{-6}	% Total	FR x 10^{-6}	% Total	FR x 10^{-6}	% Total
Diodes	7.796800	7.42	46.547250	8.96	65.152650	12.54
Varactors	5.880000	6.60	42.000000	8.09	30.240000	5.82
Hybrids	45.727150	43.51	89.934710	16.35	92.242820	17.76
Filters	1.224000	1.17	7.344000	1.41	15.504000	2.98
Resistors Car.	0.095460	0.09	0.310730	0.06	0.340832	0.07
Resistors W.W.	0.274005	0.26	2.180700	0.42	1.813800	0.35
Resistors Film	0.024840	0.02	0.240000	0.05	0.252000	0.05
Resistors Var.	1.169600	1.11	5.000000	0.96	15.000000	2.89
Capacitors Tant.	0.689895	0.66	0.881480	0.17	0.966120	0.19
Var. Caps. Cer.	0.032400	0.03	0.043110	0.01	0.067000	0.01
Mica Capacitors	0.000561	.01	0.009975	.01	0.005940	.01
C . NPO Caps.	0.020403	0.02	0.123200	0.02	0.140000	0.03
Var. Glass Caps.	0.00	0.00	0.930000	0.18	0.00	0.00
Capacitors Glass	0.00	0.00	0.000394	.01	0.00	0.00
Capacitors Cer.	0.055653	0.05	0.378415	0.07	0.453295	0.09
Inductors	9.299999	9.45	86.193199	16.60	97.441999	18.75
Transformers	4.200000	4.00	33.560000	6.48	37.020000	7.13
Transistors	1.672050	1.59	53.989120	10.39	37.010640	7.12
Relays	1.704920	1.62	64.850500	12.49	35.471500	6.83
Connectors	0.222582	0.21	0.672182	0.13	0.512910	0.10
Pinlites	0.175000	0.17	35.000000	6.74	35.000000	6.74
Switches	0.188880	0.18	6.866100	1.32	1.244880	0.24
Fuses	0.100000	0.10	0.300000	0.06	0.200000	0.04
Monolithic IC's	19.347664	18.41	33.958800	6.54	39.595080	7.62
Thermistors	0.00	0.00	0.027000	.01	0.300000	0.06
M er	4.554000	4.33	12.948170	2.49	13.545000	2.61

improvement could adversely impact life cycle costs. Therefore, a complete analysis of screening versus life cycle cost is being conducted and the results of this analysis will be included in the Final Life Cycle Cost Analysis Report.

APPENDIX I

STRESS ANALYSIS - MANPACK

▲ 2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C2		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C4	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C5		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C7	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C6		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C12		1501-36-53	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C13	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C9		CKR05BX102K	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	1	.0005
	Resistor	R1		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R2		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R3		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R4		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R8		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R9		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	6	.00036
	Inductor RF	L1	Lenox Fugle	NR2.7	217A/7.7-9	65					30%		.2	1	.06
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					30%		.2	1	.06
		L3	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	1	.06
		L4	Lenox Fugle	NR1.8	217A/7.7-9	65					30%		.2	1	.06
		L5	Lenox Fugle	NR0.47	217A/7.7-9	65					30%		.2	1	.06

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Manpack

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .032006 X10^{-5}

AT _____ DEGREES CENTIGRADE

- 2712 RESS ANALYSIS

ITEM # - E.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Fact	Tot.
	Capacitor	C11		CKR05BX102KR	198B/1001.2	65	Volts	200	10	4	100%	< .1	.0005	1	.0005
		C3		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.0011	1	.0011
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T2	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
	Relay	K1	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	2.5	.006975
	Diode Varac.	CR1	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR2	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR3	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR4	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR5	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR6	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR7	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR8	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
	Capacitor	C10		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	1	.0005
		C14		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	1	.00015
		C15		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	1	.00015
		C23		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.0011	1	.0011
		C24		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	1	.0005
		C25		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	1	.0005
		C26		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	1	.00015

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Manpack

PAGE 2 OF 3

DRAWING NO. 37A50, Tuner

TOTAL FAILURE RATE .1311625 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
	Capacitor	C63		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	1	.0005
		C35		1501-36-102	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
	Resistor	R5		RCR05G104JS	199A/301.2	65	mW	125	< 1	<1	100%	< .1	.0002	6	.0012
		R6		RCR05G622JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R7		RCR05G302JS	199A/301.2	65	mW	125	< 1	<1	100%	< .1	.0002	6	.0012
		R11		RCR05G333JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R12		RCR05G104JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R13		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R14		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
	Inductor	L6	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06
		L7	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06
		L12	Lenox Fugle	NR10	217A/7.6-25	65					90%		.2	1	.18
	Transformer	T3	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T4	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
FET	Transistor	Q1	Siliconix	U320	217A/7.4-13	.37	watts	3	0	.15	30%	.05	.608	1	.1824
SIPNP	Transistor	Q2		JAN2N2907	217A/7.4-13	.228	mW	400	0	.6	30%	< .01	.511	1.5	.2299
	Diode, Pin	CR9	Hew. Pack.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	1.5	.12105

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Manpack

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .101870 X10⁻⁵

AT _____ DEGREES CENTIGRADE

-112 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C29		CKR05BX102KR	198B/1001.2	65	volts	200	90	90	100%	.45	.0011	1	.0011
		C27	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C28		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C30		DV501H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C31		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C33		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C32		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C34		1501-36-62	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C40		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C36		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	1	.0005
		C37		CKR05BX102KR	198B/1001.2	65	volts	200	0	.1	30%	< .1	.0005	1	.00015
	Resistor	R15		RCR05G303JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R16		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R17		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R18		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R19		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R20		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
	Inductor RF	L13	Lenox Fugle	NR-3.9	217A/7.7-9	65					30%		.2	1	.06
		L14	Lenox Fugle	NR-2.7	217A/7.7-9	65					30%		.2	1	.06
		L15	Lenox Fugle	NR-3.9	217A/7.7-9	65					30%		.2	1	.06

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Manpack

PAGE 1 OF 4

DRAWING NO. 377-50, Tuner

TOTAL FAILURE RATE .0202150 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor RF	L16	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	1	.06
		L17	Lenox Fugle	NR0.33	217A/7.7-9	65					30%		.2	1	.06
RF	Transformer	T5	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T6	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
	Relay	K2	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	2.5	.0069
	Diode Varac.	CR10	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR11	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR12	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR13	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR14	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR15	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR16	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR17	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR18	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR19	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR20	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR21	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR22	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR23	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
	Capacitor	C38		CKR05BX102KR	198B/1001.2	65	volts	200	10	4	100%	< .1	.0005	1	.0005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Manpack

PAGE 2 OF 4

DRAWING NO. 37745-, Tuner

TOTAL FAILURE RATE .226740 X10⁻⁵

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	λ Factor	Tot. F. R.
	Capacitor	C39		1501-36-53	217A/7.6-25	65		100	0	.1	30%	< .1	.002	1	.0006
		C41		CKR05BX102KR	198B/1001.2	65		200	0	5	30%	< .1	.0005	1	.00015
		C42		CKR05BX102KR	198B/1001.2	65		200	0	5	30%	< .1	.0005	1	.00015
		C43		CKR05BX102KR	198B/1001.2	65		200	90	90	100%	.45	.0011	1	.0011
		C44		CKR05BX102KR	198B/1001.2	65		200	15	15	100%	< .1	.0005	1	.0005
		C45		CKR05BX102KR	198B/1001.2	65		200	0	5	30%	< .1	.0005	1	.00015
		C62		CKR05BX102KR	198B/1001.2	65		200	90	90	100%	.45	.0011	1	.0011
	Resistor	R21		RCR05G104JS	199A/301.2	65	mW	125	<1	<1	100%	< .1	.0002	6	.0012
		R22		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	< .1	.0002	6	.0012
		R23		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	6	.00036
		R24		RCR05G333JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R25		RCR05G104JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R26		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
		R27		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	6	.00036
	Inductor	L19	Lenox Fugle	5R10	217A/7.7-9	65					30%		.2	1	.06
		L18	Lenox Fugle	5R10	217A/7.7-9	65					30%		.2	1	.06
	Transformer	T7	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T8	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
	Diode Pin	CR24	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	1.5	.12105
FET	Transistor	Q3	Siliconix	U320	217A/7.4-13	.37	mW	400	0	.15	30%	.05	.608	1	.1824

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Manpack

PAGE 3 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .061140 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712 S..ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
SIPN:	Transistor	Q4		JAN2907	217A/7.4-13	.288	watts	3	0	.6	30%	< .01	.511	1.5	.22995

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Manpack

PAGE 4 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .022995 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C46	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C48	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C49	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C56	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C47		CKR05BX102XR	198B/1001.2	65	volts	200	90	90	100%	.45	.0011	-	.0011
		C50		1501-36-71	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.00001	-	.000003
		C51		CKR05BX102UR	198B/1001.2	65	volts	200	90	90	100%	.45	.00001	-	.0011
		C52		CKR05BX102UR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0011	1	.0005
		C53		CKR05BX102UR	198B/1001.2	65	volts	200	0	.1	30%	< .1	.0005	-	.00015
	Resistor	R28		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0005	1	.0012
		R29		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R30		RCR05G304JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R31		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R32		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R33		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6	.00036
	Inductor RF	L20	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	1	.06
		L21	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	1	.06
		L22	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	1	.06
		L23	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	1	.06
		L24	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .0320013 X10-5

FUNCTIONAL BLOCK Preselector, Band III Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

-712 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor RF	L25	Lenox Fugle	NR0.33	217A/7.7-9	65					30%		.2	1	.06
		L26	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06
	RF Transformer	T9	Cin. Elec.		217A/7.7-9	65					30%		.2	1	.06
		T10	Cin. Elec.		217A/7.7-9	65					30%		.2	1	.06
	Relay	K3	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	2.5	.00697[illegible]5
	Diode Varac.	CR25	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR26	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR27	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR28	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR29	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR30	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR31	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR32	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
	Diode Pin	CR33	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	1.5	.12105
	Capacitor	C54		1501-36-53	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C55		CKR05BX102KR	198B/301.2	65	volts	200	10	4	100%	< .1	.0005	1	.0005
		C57		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	.0005	1	.00015
		C58		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	.0005	1	.00015
		C59		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	30%	< .1	.0005	1	.00015
		C60		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	1	.0005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Manpack

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .1490075 X10-5

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C61		CKR05BX102KR	198B/1002.2	65	volts	200	90	90	100%	.45	.0011	1	.0011
		C8		CKR05BX102KR	198B/1001.2	65	volts	200	10	10	100%	< .1	.0005	1	.0005
	Resistor	R34		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R35		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R36		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	6	.00036
		R37		RCR05G333JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6	.00036
		R38		RCR05G104JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6	.00036
		R39		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6	.00036
		R40		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
	Inductor	L27	Lenox Fugle	NR10	217A/7.7-9	65	mW	125			90%		.2	1	.18
	Transformer	T11	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T12	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
FET	Transistor	Q5	Siliconix	U320	217A/7.4-13	.37	watts	3	0	.15	30%	.05	.608	1	.1824
SI	NP Transistor	Q6		JAN2N2907	217A/7.7-13	.228	mW	400	0	.6	30%	< .01	.511	1.5	.22995

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselecter, Band III Manpack

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .077899 X10-5

AT _____ DEGREES CENTIGRADE

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F
	Capacitor	C16		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	90%	< .1	.0005	1	.00045
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	0	2.5	90%	< .1	.0005	1	.00045
		C18		1501-36-58	217A/7.6-25	65	volts	100	0	2.5	90%	< .1	.002	1	.0018
		C19		1501-36-55	217A/7.6-25	65	volts	100	0	.1	90%	< .1	.002	1	.0018
		C20		1501-36-60	217A/7.6-25	65	volts	100	0	2.5	90%	< .1	.002	1	.0018
		C21		1501-36-71	217A/7.6-25	65	volts	100	0	.1	90%	< .1	.002	1	.0018
		C22		1501-36-53	217A/7.6-53	65	volts	100	0	2.5	90%	< .1	.002	1	.0018
	Resistor	R10		RCR05G202JS	199A/301.2	65	mW	125	0	10	90%	<.1	.0002	6	.00054
	Inductor	L8	Lenox Fugle	NR10	217A/7.7-9	65					90%		.2	1	.18
		L9	Cin. Elec.		217A/7.7-9	65					90%		.2	1	.18
		L10	Cin. Elec.		217A/7.7-9	65					90%		.2	1	.18
	Mixer	U1	Relcom	M6D	217A/7.4.11 7.7.c	65					90%		5.06	- 4	.554
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					90%		.032	.5	.0144
		P2	Amp	85930-4 8p	RADC II/191	65					100%		.0029	.5	.00145
		P3	Amp	85930-4 10p	RADC II/191	65					100%		.00326	.5	.00163
		P4	Microdot	141-1005-0001	RADC II/191	65					30%		.032	.5	.0048
		P5	Microdot	141-1005-0001	RADC II/191	65					30%		.032	.5	.0048

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Mixer and Connectors Manpack

PAGE 1 OF 1

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .513152 X10-5

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C1		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	1	.0018
		C2		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	1	.0018
		C3		CKR05BX103KR	198B/1001.2	65	volts	100	1	1	100%	< .1	.0005	1	.0005
		C4		CKR05BX103KR	198B/1001.2	65	volts	100	.5	.5	100%	< .1	.0005	1	.0005
		C5		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	< .1	.0005	1	.0005
		C6		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	.05	.0005	1	.0005
	Resistor	R1		RCR05G123JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R2		RCR05G393JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R3		RCR05G100JS	199A/301.2	65	mW	125	2.5	2.5	100%	< .1	.0002	6	.0012
	Inductor RF	L1	Lenox Fugle	NR3.3	217A/7.7-9	65					100%		.2	1	.2
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					100%		.2	1	.2
	Hybrid	HY1	Cin. Elec.	376259	USAECOM	65					100%		1.032	-	1.032
		HY2	Cin. Elec.	376259	USAECOM	65					100%		1.032	-	1.032
		HY3	Cin. Elec.	376259	USAECOM	65					100%		1.032	-	1.032
		HY4	Cin. Elec.	377668	USAECOM	65					100%		1.4385	-	1.4385
	Connector	P1	Microdot	141-1002-0001	RADC II/191	65					90%		.032	.5	.0144
		P2	Microdot	141-1002-0001	RADC II/191	65					0		.032	.5	0
	Crystal Fil.	FL1		376270	217A/7.12-3	65					89%		.68	-	.6052
		FL2		376252	217A/7.12-3	65					45%		.68	-	.306
	Hybrid	HY5	Cin. Elec.	376261	USAECOM	65					100%		.1532	-	.1532

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Manpack

PAGE 1 OF 3

DRAWING NO. 377400, I3

TOTAL FAILURE RATE .60225 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Hybrid	HY6	Cin. Elec.	376261	USAECOM	65					100%		.1532	-	.1532
	Crystal Fil.	FL3		376270	217A/7.12-3	65					44%		.68	-	.2992
				376251	217A/7.12-3	65					1%		.68	-	.0068
				376251	217A/7.12-3	65					1%		.68	-	.0068
	Capacitor	C7		CKR05BX103KR	198B/1001.2	65	volts	200	0	0	0		.0005	1	0
	Resistor	R4		RCR05G911JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R5		RCR05G101JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R6		RCR05G274JS	199A/301.2	65			10	5	100%	< .1	.0002	6	.0012
		R7		RCR05G274JS	199A/301.2	65			15	10	100%	< .1	.0002	6	.0012
		R10		RCR05G151JS	199A/301.2	65			0	0	0	< .1	.0002	6	0
	Inductor	L3	Cin. Elec.	377402	217A/7.7-9	65					100%		.2	1	.2
		L4	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L5	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L6	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L7	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L8	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L9	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L10	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L11	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2
		L12	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	.2

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Manpack

PAGE 2 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE .24708 X10^{-5}

AT ___ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
SINPN	Transistor	Q1		2N5652	217A/7.4-13	.32	mW	150	2	2	100%	<.01	.269	1.5	.4035

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Manpack

PAGE 3 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE .04035 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tb	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R11		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R12		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R13		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R14		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R15		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R16		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R17		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
	Capacitor	C8		CKR06BX104KR	198B/1001.2	65	volts	200	105	105	100%	.5	.0015	-	.0015
	LSI, CMOS	U7		377670	USAECOM	65					100%		3.7	-	3.7
	Hybrid	U8		377671	USAECOM	65					100%		1.0368	-	1.0368
	MSI	U9		377669	USAECOM	65					100%		1.5	-	1.5
	Connector	P3	Amp	1-85930-1 31p	RADC II/191	65					100%		.00732	.5	.00384

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Band and Tuner Control Manpack

PAGE 1 OF 1

DRAWING NO. 377400, IF

TOTAL FAILURE RATE .625054 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		NP105A-10	217A/7.6-81	65	volts	4	0	.1	90%	.02	.0011	-	.00099
		C2		VK30BA472K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	1	.0065
		C3		VK30BA103K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	1	.0065
		C5		S685R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C6		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C7		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C8		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
	Resistor	R1		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R2		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R3		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R4		RCR05G182JS	199A/301.2	65	mW	125	<.1	<.1	100%	<.1	.0002	6	.0012
		R5		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	6	.0001
		R6		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.03	.012
		R7		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	6	.0012
		R8		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.03	.012
		R11		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R12		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R13		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R14		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R15		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive Audio Manpack

PAGE 1 OF 2

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE .006199 X10⁻⁵

AT _____ DEGREES CENTIGRADE

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R16		RCR05G	199A/301.2	65	mW	125	20	20	100%	<.1	.0002	6	.0012
		R17		RCR05G	199A/301.2	65	mW	125	20	20	100%	<.1	.0002	6	.0012
	Hybrid	U1	Cin. Elec.	377662	USAECOM	65					100%		1.7958	-	1.7958
		U2	Cin. Elec.	377663	USAECOM	65					100%		1.7318	-	1.7318
	LSI	U4	Cin. Elec.	377664	USAECOM	65					100%		3.7	-	3.7
		U5	Cin. Elec.	377665	USAECOM	65					100%		3.7	-	3.7
	Hybrid	U6	Cin. Elec.	377666	USAECOM	65					100%		2.8844	-	2.8844
		U8	Cin. Elec.	377661	USAECOM	65					100%		1.2880	-	1.2880
	Connector	P1	Amp	2-85928-2 30p	RADC II/191	65					100%		.0072	.5	.0036

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive Audio Manpack

PAGE 2 OF 2

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE 1.51055 X10-5

AT _____ DEGREES CENTIGRADE

- 2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C9		F105R-10	217A/7.6-81	65	volts	20	0	5	10%	.25	.0019	-	.00019
	Resistor	R9		RCR05GXXXJS	199A/301.2	65	mW	125	0	10	10%	< .1	.0002	6	.00012
		R10		RCR05G	199A/301.2	65	mW	125	0	10	10%	< .1	.0002	6	.00012
	Hybrid	U7		376216	USAECOM	65					10%		3.3554	-	.33554
		U10		377667	USAECOM	65					10%		1.7347	-	.17347

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Transmit Audio Manpack

PAGE 1 OF 1

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE .050944 X10^{-5}

AT _____ DEGREES CENTIGRADE

-712 ESS ANALYSIS

ITEM # B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G562JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R11		RCR07G750JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R12		RCR07G750JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R13		RCR07G473JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R14		RCR07G473JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
	Capacitor	C45		DM5C050DP	217A/7.6-21	65°	volts	300	0	15	10%	<.1	.0003	1.4	.000042
		C46		DM5C390GP	217A/7.6-21	65°	volts	300	0	15	10%	<.1	.0003	1.4	.000042
		C47		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
		C48		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
		C49		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
		C50		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
	Inductor	L25	Cin. Elec.		217A/7.2-9	65°					10%		.2	1	.02
		L26	Cin. Elec.		217A/7.2-9	65°					10%		.2	1	.02
		L27	Delevan	1025-32	217A/7.2-9	65°					10%		.2	1	.02
		L28	Delevan	1025-32	217A/7.2-9	65°					10%		.2	1	.02
	Transformer	T4	Cin. Elec.		217A/7.2-9	65°					10%		.2	1.5	.03
	Diode Si	CR7	Hew. Pac.	HP5082-2800	217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	1.5	.0315
		CR8	Hew. Pac.		217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	1.5	.0315
	Connector	P1		51-728-000-2G	RADC II/191	65°					10%		.032	.5	.0016
		P2		51-728-000-2G	RADC II/191	65°					10%		.032	.5	.0016

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Detector MANPACK

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0177084 X10^{-5}

AT _____ DEGREES CENTIGRADE

12 S SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Connector	P3	MCDD1-954L5-1.0 9p	RADC II/191		65°					10%		.00308	.5	.000154

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Detector MANPACK

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0000154 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 AESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C15		ATC100B4R3BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	1	.00063
		C16		DM5C130DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	1.4	.000013
		C17		DM5C330DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	1.4	.000013
		C18		ATC10089R1BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	1	.00063
		C19		DM5C430DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C20		DM5C101GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C21		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C22		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C23		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C8		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
		C11		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
	Inductor	L5	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L6	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L7	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L8	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L9	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L10	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
	Relay	K1		GB-831C-5F	217A/7.10-5	65					3%		.101	2.5	.00757
		K2		GB-831C-5F	217A/7.10-5	65					3%		.101	2.5	.00757
		C14		CKR05BX103KR	198B/1001.2	65	volts	100	24	24	100%	.24	.0005	1	.0005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Manpack

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0053021 X10-5

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C42		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005		.000015
	Inductor	L11	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L12	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
	Diode Si	CR1		JAN1N4148	217A/9.4-11	.266	mA	75	0	< 5	3%	< .1	.23	1.5	.01035
		CR4		JAN1N4148	217A/9.4-11	.266	mA	75	0	< 5	3%	< .1	.23	1.5	.01035
	Capacitor	C16'		DM5C120DP	217A/7.6-21	65	volts	300	0	1	3%	.1	.0003	1.4	.00003

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Manpack

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0032728 X10^-5

AT _____ DEGREES CENTIGRADE

4712 S. ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C24		ATC100B3R0BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C25		DM5C180DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C26		DM5C240DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C27		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C28		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C29		DM5C360DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C30		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C31		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C32		DM5C130DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C9		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
		C12		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
	Inductor	L13	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L14	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L15	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L16	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L17	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L18	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
	Relay	K3	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
		K4	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
	Capacitor	C43		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Manpack

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0057919 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - S.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Diode Si	CR2		JAN1N4148	217A/7.4-11	.266	mA	75	0	< 5 ·	3%	< .1	.23	1.5	.01035
		CR5		JAN1N4148	217A/7.4-11	.266	mA	75	0	< 5	3%	< .1	.23	1.5	.01035
	Capacitor	C31'		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C32'		DM5C100DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Manpack

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0020726 X10⁻⁵

AT _____ DEGREES CENTIGRADE

4712 : ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C33		ATC100B2R0BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C34		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000018
		C35		ATC100B9R1BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C36		ATC100B9R1BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C37		DM5C100DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000018
		C38		DM5C510DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000018
		C39		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000018
		C40		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000018
		C41		ATC100B9R1BRW	217A/7.6-59	65	volts	300	0	30	3%	.1	.021	1	.00063
		C10		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
		C13		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
	Inductor	L19	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L20	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L21	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L22	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L23	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L24	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
	Relay	K5	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
		K6	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
	Capacitor	C44		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Manpack

PAGE 1 OF 2

DRAWING NO. 3[illegible]257, Filter Assembly

TOTAL FAILURE RATE .005377 X10-5

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C53		DM5C560DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C54		DM5C510DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
	Inductor	L34	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L35	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L36	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L37	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L38	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
	Diode Si	CR3		JAN1N4148	217A/7.4-11	.266	mA	75	0	5	3%	<.1	.23	1.5	.01035
		CR6		JAN1N4148	217A/7.4-11	.266	mA	75	0	5	3%	<.1	.23	1.5	.01035
	Capacitor	C35'		ATC100B8R0BRW	217A/7.6-59	65	volts	300	0	1	3%	.1	.021	1	.00063
		C37'		DM5C130DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C41'		DM5C100DP	217A/7.6-25	65	volts	300	0	30	3%	.1	.0003	1.4	.000013

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Manpack

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0051382 X10^{-5}

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR05bX103KR	198B/1001.2	65	volts	100	0	10	10%	.1	.0005	1	.00005
		C2		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00005
		C3		CKR06BX105KR	198B/1001.2	65	volts	50	0	12	10%	.24	.0005	1	.00005
		C4		CKR06BX105KR	198B/1001.2	65	volts	50	0	24	10%	.48	.0013	1	.00013
		C5		DM5C101JP	217A/7.6-21	65	volts	300	0	10	10%	< 1	.0003	1.4	.000042
		C6		CKR06BX334KR	198B/1001.2	65	volts	50	0	10	10%	.2	.0005	1	.00005
		C7		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00005
		C51		DM5C101GP	217A/7.6-21	65	volts	300	0	< 1	10%	< .1	.0003	1.4	.000042
		C52		DM5C181GP	217A/7.6-21	65	volts	300	0	< 1	10%	< .1	.0003	1.4	.000042
		C53		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00005
		C54		CKR05BX103KR	198B/1001.2	65	volts	100	0	0	0%	0	.0005	1	0
		C55		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00005
	Resistor	R1		RCR07G104JS	199A/301.2	65	mW	250	0	1	10%	< .1	.0002	6	.00012
		R2		RCR07G300JS	199A/301.2	65	mW	250	0	12	10%	.1	.0002	6	.00012
		R3		.2 ohm ½W	217A/7.5-25	65	mW	500	0	130	10%	.26	.19	.03	.00057
		R4		RCR07G752JS	199A/301.2	65	mW	250	0	3	10%	< .1	.0002	6	.00012
		R5		RCR07G252JS	199A/301.2	65	mW	250	0	< 1	10%	< .1	.0002	6	.00012
	Inductor	L1	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	1	.02
		L2	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
		L3	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	1	.02

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .0061656 X10^{-5}

FUNCTIONAL BLOCK Power Amplifier Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 3

DRAWING NO. 377255, Power Amplifier

-712 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor	L4	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	1	.02
		L29	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
		L30	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
		L31	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
		L32	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					10%		.2	1.5	.03
		T2	Cin. Elec.		217A/7.7-9	65					10%		.2	1.5	.03
		T3	Cin. Elec.		217A/7.7-9	.428					10%		.347	1.5	.03
	Diode Si	CR1		1N4148	217A/7.4-11	.428	mW	100	20	20	10%	.2	.347	1.5	.05205
		CR5		1N4148	217A/7.4-11	65	mW	100	0	0	0%	0	.20233	1.5	0
	Hybrid	A1	Cin. Elec.	377686	217B	65					10%		.13961	-	.03338
		A2	Cin. Elec.	377687	217B	65					10%		.032	-	.09112
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					10%		.00516		
		P2	Amp	85930-4 20 pin	RADC II/191	65					10%		.032	.5	.000238
		P3	Microdot	141-1005-0001	RADC II/191	65					10%		.00308	.5	.00154
		P4		MCDD1-9P465-10 9 pins	RADC II/191	65					100%		.0001	-	.00001
	Resistor	R6		RCR07 JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	6	.00012
		R7		RCR07 JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	6	.00012
		R8		RCR07G122JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	6	.00012
		R9		RCR07G472JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	6	.00012

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Manpack

PAGE 2 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE .0370438 X10⁻⁵

AT _____ DEGREES CENTIGRADE

4712 .ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G103JS	199A/301.2	65	mW	250	0	4	10%	<.1	.0002	6	.00012
		R11		RCR07G513JS	199A/301.2	65	mW	250	0	1	10%	<.1	.0002	6	.00012
		R12		RCR07G513JS	199A/301.2	65	mW	250	0	2	10%	<.1	.0002	6	.00012
	Inductor	L33	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
		L34	Delevan	1025-32	217A/7.7-9	65					10%		.2	1	.02
		L35		1025-32	217A/7.7-9	65					10%		.2	1	.02
		L37		1025-32	217A/7.7-9	65					0		.2	1	0
	SINEN Transistor	Q1		JAN2N2222A	217A/7.4-13	.228	mW	500	0	.1	10%	<.1	.210	1.5	.0315
	Hybrid	A3	Cin. Elec.	377688	USAECOM	65					10%		.1972	-	.01972
	Connector	P5	Microdot	141-1005-0001	RADC II/191	65					10%		.032	.5	.0016
		P6	Microdot	141-1005-0001	RADC II/191	65					10%		.032	.5	.0016
		P7	Selectro	51-751-0000-2	RADC II/191	65					10%		.032	.5	.0016
		P8	Selectro	51-751-0000-2	RADC II/191	65					10%		.032	.5	.0016
	Resistor	R13		RCR07JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R14		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
		R15		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
	Relay	K7		GB-831C-SE	217A/7.10-5	65					100%		.301	2.5	.752
		K8		GB-831C-SE	217A/7.10-5	65					100%		.018	2.5	.045
		K9		GB-831C-SE	217A/7.10-5	65					10%		.301	2.5	.0752

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .099054 X10^{-5}

FUNCTIONAL BLOCK Power Amplifier Manpack

AT _____ DEGREES CENTIGRADE

PAGE 3 OF 3

DRAWING NO. 377255, Power Amplifier

2712 .RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C1		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C2		Y103A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C3		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03		.03
		C4		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03		.03
		C6		Y154A-05	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
	Resistor	R1		RCR05 JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R2		RCR05 JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
	Inductor	L1	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	1	.2
		L6	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	1	.2
		L7	Lenox Fugle	NR-3.9	217A/7.7-9	65					100%		.2	1	.2
		L8	Lenox Fugle	NR-12	217A/7.7-9	65					100%		.2	1	.2
		L9	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	1	.2
		L10	Lenox Fugle	NR-10	217A/7.7-9	65					10%		.2	1	.02
		L11	Lenox Fugle	NR-3.3	217A/7.7-9	65					10%		.2	1	.02
	Transformer	T1	Cin. Elec.	377354	217A/7.7-9	65					100%		.2	1.5	.3
		T2	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	1.5	.3
		T3	Cin. Elec.	377353	217A/7.7-9	65					100%		.2	1.5	.3
		T4	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	1.5	.3
		T5	Cin. Elec.	377352	217A/7.7-9	65					100%		.2	1.5	.3
		T6	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	1.5	.3

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .29219 X10^{-5}

FUNCTIONAL BLOCK RF Modulator Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 4

DRAWING NO. 377350, Synth/RF Modulator

4712 S ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Transformer	T7	Cin. Elec.	377356	217A/7.7-9	65					10%		.2	1.5	.03
	Hybrid	HY2	Cin. Elec.	377677	USAECOM	65					100%		2.1994		2.1994
		HY4	Cin. Elec.	377675	USAECOM	65					33%		.1504		.0501
		HY5	Cin. Elec.	377675	USAECOM	65					33%		.1504		.0501
		HY6	Cin. Elec.	377675	USAECOM	65					33%		.1504		.0501
		HY7	Cin. Elec.	377676	USAECOM	65					100%		.1932		.1932
	Capacitor	C15		Y474A-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065		.0065
		C16		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	< .1	.0005	1	.0005
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	< .1	.0005	1	.0005
		C18		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065		.0022
		C19		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065		.0022
		C20		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065		.0022
	Resistor	R3		RCR05 JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R7		RCR05102JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R8		RCR05102JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R9		RCR05103JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R10		RCR05103JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R11		RCR05103JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R12		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	< .1	.0002	6	.0012
		R13		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	< .1	.0002	6	.0012

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Manpack

PAGE 2 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .25966 X10^{-5}

AT _____ DEGREES CENTIGRADE

(12 S -SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R16		RCR05104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
	Int. Circuit	IC1	Plessey	376152	RADC II/413	65					100%		.432		.432
	Hybrid	HY8		377679	USAECOM	65					100%		.1560		.1560
	Resistor	R18		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R19		RCR05 JS	199A/301.2	65	mW	125	12	12	100%	.1	.0002	6	.0012
	Connector	P1	Amp	85930-4 20p	RADC II/191	65					100%		.00516	.5	.00258
		P2	Microdot	141-1005-0001	RADC II/191	65					100%		.032	.5	.016
		P3	Microdot		RADC II/191	65					100%		.032	.5	.016
	Transformer	T8		377357	217A/7.7-9	65					10%		.2	1.5	.03
	Diode, Var.	CR1		DKV6523B	Cin. Elec.	65					100%		.14		.14
		CR2		DKV6523B	Cin. Elec.	65					100%		.14		.14
		CR3		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR4		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR5		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR6		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR7		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR8		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR9		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR10		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR11		DKV6524B	Cin. Elec.	65					100%		.14		.14

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Manpack

PAGE 3 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .219618 X10-5

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Diode, Var.	CR12		DKV6524B	Cin. Elec.	65					100%		.14		.14

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Manpack

PAGE 4 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .014 X10^{-5}

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C7	Comp. Inc.	Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C8		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03
		C9		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03
		C10		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
	Resistor	R4		RCR05G...JS	199A/301.2	65	mW	125	2	2	100%	<.1	.0002	6	.0012
		R5		RCR05G101JS	199A/301.2	65	mW	125	20	10	100%	<.1	.0002	6	.0012
		R6		RCR05G...JS	199A/301.2	65	mW	125	1	1	100%	<.1	.0002	6	.0012
		R7		RCR05G104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
	Inductor	L2	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	1	.2
		L3	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	1	.2
	Int. Circuit	IC1	CTS Knights	376153 TCXO	RADC II/413	65					100%		.3456		.3456
		IC2		Ref. 4/4 N	USAECOM	65					100%		3.7		3.7
	Resistor	R20		RCR05 JS	199A/301.2	65		125	1	1	100%	<.1	.0002	6	.0012
	Capacitor	C11		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C12		G106A-20	217A/7.6-81	65	volts	15	5.6	5.6	100%	.37	.003		.003
		C13		S685A-20	217A/7.6-81	65	volts	35	20	20	100%	.57	.011		.011
		C14		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03
		C5		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C22		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Manpack

PAGE 1 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .46116 X10^{-5}

A: _____ DEGREES CENTIGRADE

2712 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C23		Y103A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
	Resistor	R14		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R15		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
	Inductor	L4	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	1	.2
		L5	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	1	.2
	Hybrid	HY1	Cin. Elec.	377678	USAECOM	65					100%		1.3916		1.3916
	Capacitor	C24	Comp. Inc..	S156R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C25	Comp. Inc.	S156R-20	21 A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C26	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C27	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C28	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C29	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C30	Comp. Inc.	S226R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C31	Comp. Inc.	S226R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		L6	Cin. Elec.	55017-AS	217A/7.7-9	65					100%		.2	1	.2
		L7	Cin. Elec.	CF101Q1	217A/7.7-9	65					100%		.2	1	.2

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Manpack

PAGE 2 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .22525 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 - RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C1		U103R-10	217A/7.6-81	65	volts	20	5	5	100%	.25	.0019	-	.0019
		C2		U104R-10	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	Diode Si	CR1		JAN1N4148	217A/7.4-11	.267	mA	75	< 1	< 1	100%	< .1	.233	1.5	.3495
	Connector	P1	Microdot	MCDD1-25P6A1	RADC II/191	65					100%		.00624	.5	.00312
	Hybrid, LSI	U1		377691	USAECOM	65					100%		15.3465	-	15.3465
	Pin Light	D51		376048	217A/7.12-3	65					.5%		7.0	-	.035
		D52		376048	217A/7.12-3	65					.5%		7.0	-	.035
		D53		376048	217A/7.12-3	65					.5%		7.0	-	.035
		D54		376048	217A/7.12-3	65					.5%		7.0	-	.035
		D55		376048	217A/7.12-3	65					.5%		7.0	-	.035

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Frequency Control Manpack

PAGE 1 OF 1

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE 1.58825 X10-5

AT _____ DEGREES CENTIGRADE

2712 . .ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tj	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor, Var	R1	Allen Bradley	GS1T048F103AA	217A/7.5-21	65	watts	0.5	.1	.1	100%	.2	.1	10	1.0
	Switch	S1		376027-1	RADC II-1217	65					100%		.008	-	.008
		S2		376027-2	RADC II-1217	65					100%		.0768	-	.0768
		S3		376029	RADC II-1217	65					.5%		.168	-	.00084
		S4	Grayhill	30-251B	RADC II-1217	65					100%		.024	-	.024
	Connector		Microdot	142-1002-0001	RADC II-191	65					100%		.032	.5	.016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					100%		.032	.5	.016
			Microdot	142-1002-0001	RADC II-191	65					90%		.032	.5	.0144
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					90%		.032	.5	.0144
			Microdot	142-1002-0001	RADC II-191	65					90%		.032	.5	.0144
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
				377103 33p	RADC II-191	65					100%		.00815	.5	.00408
			I.T.T. Can.	ES-C-211489 5p	RADC II-191	65					100%		.00238	.5	.00119
				377141 6p	RADC II-191	65					100%		.00258	.5	.00129

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .12026 X10^{-5}

FUNCTIONAL BLOCK Chassis Assembly Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377100, Chassis Assembly

2712 ‹ESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Connector			UG-912/U	RADC II-191	65					100%		.032	.5	.016
	Switch	S5		376029	RADC II-217	65					.5%		.168	.5	.00084
		S6		51MX23029-3A1	RADC II-217	65					100%		.0784	.5	.0784
	Fuse		Little Fuse	277-004	217A/7.12-3	65					100%		.1	-	.1
	Diode			1N914	217A/7.4-11	.267	mA	75	0	2	100%	< .1	.233	1.5	.3495
	Resistor			RCR05G103JS	199A/301.2	65	mA	125		10	100%	< .1	.0002	6	.0012

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Manpack

PAGE 2 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .054594 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 5 .SS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C6	Comp Inc.	L336R20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C7	Comp Inc.	F305R-20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C8	Comp Inc.	F305R-20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C9	Comp Inc.	F305R-20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C10	Comp Inc.	M106R-20	217A/7.6-81	65	volts	6	0	4	.5%	.67	.023	-	.000115
	Inductor	L3	Cin. Elec.	377556	217A/7.7-9	65					100%		.2	1.5	.3
	Transformer	T2	Cin. Elec.	377553-1	217A/7.7-9	65					100%		.2	1.5	.3
		T3	Cin. Elec.	377553-2	217A/7.7-9	65					100%		.2	1.5	.3
	MSI	Z2	Cin. Elec.	377657	RADC II/413	65					100%		.9504	-	.9504
	Diode Si	CR3		1N5802	217A/7.4-11	.315	amps	2.5	.12	.12	100%	.048	.455	1	.455
	Diode Si	CR4		1N5802	217A/7.4-11	.366	amps	2.5	.25	.25	100%	.1	.542	1	.542
	Resistor	R3		RW81U2R00F	217A/7.5-15	65	watts	1	.044	.044	100%	< .1	.0087	10	.087
		R4		RW81U1R50F	217A/7.5-15	65	watts	1	.1	.1	.5%	.1	.0087	10	.000435
	MSI	Z3		377656	RADC II/413	65					.5%		.6048	-	.003024

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 4 & 5 Volt Regulators Manpack

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE .3093974 X10^{-5}

AT _____ DEGREES CENTIGRADE

4 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C3		CL67BJ470MPG	217A/7.6-47	65	volts	75	24	24	100%	.33	.023	.5	.0115
		C4			217A/7.6-81	65	volts	15	10	10	100%	.67	.02	-	.02
		C5			217A/7.6-81	65	volts	15	10	10	100%	.67	.02	-	.02
	Inductor	L2	Cin. Elec.	377555-2	217A/7.7-9	65					100%		.2	1.5	.3
	Transformer	T1	Cin. Elec.	377552	217A/7.7-9	65					100%		.2	1.5	.3
	MSI	Z1	Cin. Elec.	377658	RADC II/413	65					100%		.6048	-	.6048
	Diode Si	CR2		JAN1N5802	217A/7.4-11	.337	amps	2.5	.175	.175	100%	.07	.493	1	.493
	Resistor	R1		RW81U1R00F	217A/7.5-15	65	watts	.1	< .1	< .1	100%	< .1	.0087	10	.087
		R2		RW81U1R00F	217A/7.5-15	65	watts	1	.022	.022	100%	< .1	.0087	10	.087
	Diode, Si	CR5		JAN1N3611	217A/7.4	.32	amps	1.0	0	0	100%	< .1	.269	1.5	.403

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 10 Volt Regulator Manpack

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE .23263 X10^{-5}

AT _____ DEGREES CENTIGRADE

12 S SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR06BX104KR	198B/1001.2	65	volts	100	24	24	100%	.24	.0065	1	.0065
		C2		M39003/01-2379	217A/7.6-81	65	volts	50	24	24	100%	.48	.0059	-	.0059
		C11		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C12		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C13		F105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C14		F105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C15		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C16		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C17		M155R-20	217A/7.6-81	65	volts	35	20	0	100%	.57	.011	-	.011
		C18		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	1	.006
		C19		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	1	.006
	Inductor	L4	Cin. Elec.	377555-3	217A/7.7-9	65					100%		.2	1.5	.3
		L5	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	1.5	.3
		L6	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	1.5	.3
		L7	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	1.5	.3
		L8	Cin. Elec.	377555-5	217A/7.7-9	65					100%		.2	1.5	.3
		L1	Cin. Elec.	377555-1	217A/7.7-9	65					100%		.2	1.5	.3
	Transformer	T4	Cin. Elec.	377554	217A/7.7-9	65					100%		.2	1.5	.3
	Diode Si	CR6		5R0	217A/7.4-11	.305	mW	500	34	34	100%	.03	.26	1.5	.39
		CR7		5R0	217A/7.4-11	.305	mW	500	34	34	100%	.03	.26	1.5	.39

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .30424 X10^{-5}

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377550, Power Supply

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot° F. R
	Diode Si	CR8		JAN1N4148	217A/7.4-11	.334	mA	75	5	5	100%	.067	.278	1.5	.416
		CR9		JAN1N4148	217A/7.4-11	.334	mA	75	5	5	100%	.067	.278	1.5	.416
		CR12		JAN1N4148	217A/7.4-11	.307	mA	75	3	3	100%	.04	.26	1.5	.39
		CR13		JAN1N4148	217A/7.4-11	.307	mA	75	3	3	100%	.04	.26	1.5	.39
		CR14		JAN1N3611	217A/7.4-11	.32	amps	1.0	.0003	.0003	100%	<.1	.269	1.5	.403
		CR15		JAN1N3611	217A/7.4-11	.32	amps	1.0	.0003	.0003	100%	<.1	.269	1.5	.403
	MSI	Z4		377659	RADC II/413	65					100%		.6912	-	.6912
	Connector	P1		20p	RADC II/191	65					100%		.00516	.5	.00258
	Diode	CR10		JAN1N4148	217A/7.4-11	.334	mA	75	5	5	100%	.067	.278	1.5	.416
		CR11		JAN1N4148	217A/7.7-11	.334	mA	75	5	5	100%	.067	.278	1.5	.416
		CR16		JAN1N3611	217A/7.7-11	.39	amps	1.0	.07	.07	100%	.07	.318	1.5	.477
	Relay	K1	Teledyne	432-3.3KR	217A/7.10-5	65							.301	2.5	.7525

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .517328 X10⁻⁵

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Manpack

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 2

DRAWING NO. 377550, Power Supply

RELIABILITY ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Resistor	R1		RW81UR200F	217A/7.5-15	65	Watts	2	.0	.4	10%	.2	.012	10	.012
	Resistor	R2	Bournes	3082P-1-103	217A/7.5-31	65	Watts	.3	0	.06	10%	.2	4.24	.1	.0424
	Resistor	R3	Bournes	3082P-1-502	217A/7.5-31	65	Watts	.3	0	.06	10%	.2	4.24	.1	.0424
	Resistor	R5	Bournes	3082P-1-502	217A/7.5-31	65	Watts	.3	0	.06	10%	.2	4.24	.1	.0424
	Resistor	R6	Bournes	2082P-1-502	217A/7.5-31	65	Watts	.3	0	.06	10%	.2	4.24	.1	.0424
	Hybrid	HY1	CEC	376112	USAECOM	65					10%		.5116		.05116
	Hybrid	HY2	CEC	377654	USAECOM	65					100%		11.3186		11.3186
	Hybrid	HY3	CEC	377651	USAECOM	65					10%		.3086		.03086
	Hybrid	HY4	CEC	377652	USAECOM	65					10%		.3086		.03086
	Hybrid	HY5	CEC	377653	USAECOM	65					10%		6.2824		.62824
	Connector	P1		MM24-22PD250	RADCII/191	65					100%		.00712	.5	.00356
	Capacitor	C1		CKR05BX561KR	198B/1001.2	65	Volts	200	0	5	10%	<.1	.0005	1	.00005
	Capacitor	C2		CKR05BX562KR	198B/1001.2	65	Volts	200	0	10	10%	<.1	.0005	1	.00005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK DC Control, Manpack

PAGE 1 OF 1

DRAWING NO. 377200, Coupler and DC Control

TOTAL FAILURE RATE 1.224498 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 /RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C1		1506-04-4	217A/7.6-25	65	v	300	0	30	10%	<.1	.002	1	.0002
	Capacitor	C2		CKR05BX561KR	198B/1001.2	65	v	500	0	3	10%	<.1	.0005	1	.00005
	Capacitor	C3		CKR05BX561KR	198B/1001.2	65	v	200	0	4	10%	<.1	.0005	1	.00005
	Capacitor	C4		CKR05BX561KR	198B/1001.2	65	v	200	0	4	10%	<.1	.0005	1	.00005
	Capacitor	C5		1506-04-6	217A/7.6-25	65	v	300	0	3	10%	<.1	.002	1	.0002
	Capacitor	C6		CKR05BX561KR	198B/1001.2	65	v	200	0	4	10%	<.1	.0005	1	.00005
	Capacitor	C7		1506-04-2	217A/7.6-25	65	v	300	0	30	10%	.1	.002	1	.0002
	Capacitor	C8		1506-04-19	217A/7.6-25	65	v	300	0	3	10%	<.1	.002	1	.0002
	Capacitor	C9		518-0000-A-3-5-20	217A/7.6-33	65	v	100	0	3	10%	<.1	.009		.0009
	Capacitor	C10		CKR05BX103KR	198B/1001.2	65	v	100	0	24	10%	.24	.0005	1	.00005
	Capacitor	C11		CKR05BX561KR	198B/1001.2	65	v	200	0	3	10%	<.1	.0005	1	.00005
	Capacitor	C12		CKR05BX561KR	198B/1002.2	65	v	200	0	3	10%	<.1	.0005	1	.00005
	Capacitor	C13		CKR05BX561KR	198B/1001.2	65	v	200	0	3	10%	<.1	.0005	1	.00005
	Capacitor	C14		CKR05BX561KR	198B/1001.2	65	v	200	0	1	10%	<.1	.0005	1	.00005
	Resistor	R1		RCR05G560JS	199A/301.2	65	mw	125	0	10	10%	<.1	.0002	6	.00012
	Resistor	R2		RCR05G560JS	199A/301.2	65	mw	125	0	10	10%	<.1	.0002	6	.00012
	Resistor	R3		RCR05G472JS	199A/301.2	65	mw	125	0	1	10%	<.1	.0002	6	.00012
	Resistor	R4		RCR05G472JS	199A/301.2	65	mw	125	0	1	10%	<.1	.0002	6	.00012
	Resistor	R5		RCR07G102JS	199A/301.2	65	mw	250	0	100	10%	.4	.0068	6	.00042
	Resistor	R6		RCR07G102JS	199A/301.2	65	mw	250	0	100	10%	.4	.0068	6	.00042

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Coupler, Manpack

PAGE 1 OF 4

DRAWING NO. 377200, Coupler & DC Control

TOTAL FAILURE RATE .000347 X10⁻⁵

AT _____ DEG CENTIGRADE

12 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C15		CKR05BX561KR	198B/1001.2	65	v	200	0	1	10%	.1	.0005	1	.00005
	Capacitor	C16		CKR05BX103KR	198B/1001.2	65	v	100	0	24	10%	.24	.0005	1	.00005
	Capacitor	C17		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C18		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C19		CKR05BX562KR	198B/1001.2	65	v	200	0	24	10%	.12	.0005	1	.00005
	Capacitor	C20		CKR05BX562KR	198B/1001.2	65	v	200	0	24	10%	.12	.0005	1	.00005
	Capacitor	C21		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C22		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C23		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C24		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C25		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C26		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C27		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C28		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C29		CKR05BX562KR	198B/1001.2	65	v	200	0	24	5%	.12	.0005	1	.00005
	Capacitor	C30		CKR05BX562KR	198B/1001.2	65	v	200	0	24	10%	.12	.0005	1	.00005
	Capacitor	C31		CKR05BX103KR	198B/1001.2	65	v	100	0	24	10%	.24	.0005	1	.00005
	Capacitor	C32		CKR05BX103KR	198B/1001.2	65	v	100	0	24	10%	.24	.0005	1	.00005
	Capacitor	C33		1506-04-4	21?A/?.6-25	65	v	300	0	30	10%	.1	.002	1	.0002
		C34		1506-04-6	21?A/?.6-25	65	v	300	0	30	5%	.1	.002	1	.0001
		C35		1506-04-19	21?A/?.6-25	65	v	300	0	30	5%	.1	.002	1	.0001

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .000130 X10-5

FUNCTIONAL BLOCK Coupler, Manpack

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 4

DRAWING NO. ?????00, Coupler - DC Control

-57-

42 S SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R7		RCR05G271JS	199A/301.2	65	mw	125	5	30	10%	.24	.0004	6	.00024
	Resistor	R8		RCR05G820JS	199A/301.2	65	mw	125	0	25	10%	.2	.0003	6	.00018
	Resistor	R9		RCR05G200JS	199A/301.2	65	mw	125	0	25	10%	.2	.0003	6	.00018
	Resistor	R10		RCR05G103JS	199A/301.2	65	mw	125	0	1	10%	.1	.0002	6	.00012
	Resistor	R11		RCR05G103JS	199A/301.2	65	mw	125	0	1	10%	.1	.0002	6	.00012
	Resistor	R12		RCR05G103JS	199A/301.2	65	mw	125	0	1	10%	.1	.0002	6	.00012
	Inductor	L1	CEC	357230-12	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L2	CEC	371350-1	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L3	CEC	371350-1	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L4	CEC	1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L5	CEC	1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L6	CEC	1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L7	CEC	1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L8	CEC	1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L9	CEC	1802-01-7	217A/7.7-9	65					10%		.2	1	.02

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Coupler, Manpack

PAGE 3 OF 4

DRAWING NO. ~~377200 Coupler & DC Control~~

TOTAL FAILURE RATE .018096 X10^{-5}

AT _____ DEGREES CENTIGRADE

-712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F. R
	Inductor	L10		1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L11		1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Inductor	L12		1802-01-7	217A/7.7-9	65					10%		.2	1	.02
	Relay	K1	Branson	LJ-7137	217A/7.10-5	65					10%		.0093	2.5	.023225
	Relay	K2	Branson	LJ-7137	217A/7.10-5	65					10%		.0093	2.5	.023225
	Relay	K3	Branson	LJ-7137	217A/7.10-5	65					10%		.0093	2.5	.023225
	Relay	K4	Branson	LJ-7137	217A/7.10-5	65					10%		.0093	2.5	.023225
	Relay	K5	Branson	LJ-7137	217A/7.10-5	65					10%		.0093	2.5	.023225
	Relay	K6	Branson	LJ-7137	217A/7.10-5	65					10%		.0093	2.5	.023225
	Connector	P1	Amphenol	85930-519P,	RADCII/191	65					100%		.00501	25	.00252
	Connector	P3	Microdot	141-1005-000	RADCII/191	65					100%		.032	.5	.016
	Inductor	L13		VK20010/3B	217A/7.7-9	65					10%		.2	1	.02
		L14		357230-10	217A/7.7-9	65					5%		.2	1	.01
		L15		357230-10	217A/7.7-9	65					5%		.2	1	.01
	Diode, S1	CR1		JAN1N5711	217A/7.4-11	.228	mw	250	0	<1	10%	<.1	.210	1.5	.0315
		CR2		JAN1N5711	217A/7.4-11	.228	mw	250	0	<1	10%	<.1	.21	1.5	.0315
		CR3		JAN1N5711	217A/7.4-11	.228	mw	250	0	<1	10%	<.1	.21	1.5	.0315
		CR4		JAN1N5711	217A/7.4-11	.228	mw	250	0	<1	10%	<.1	.21	1.5	.0315
		CR5		JAN1N5711	217A/7.4-11	.228	mw	250	0	<1	10%	<.1	.21	1.5	.0315
	Connector	P2		MM29-225D20S	RADCII/191	65					100%		.00716	.5	.00358
	Hybrid	U1	CEC	376114	USAECOM	65					10%		.2064		.02064

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .031419 X10^{-5}

FUNCTIONAL BLOCK Coupler, Manpack

AT _____ DEGREES CENTIGRADE

PAGE 4 OF 4

DRAWING NO. 377200, Coupler & DC Contr.l

APPENDIX II

STRESS ANALYSIS - VEHICULAR

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C2		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C4	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C5		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C7	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C6		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C12		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C13	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C9		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	5	.0025
	Resistor	R1		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R4		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R8		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R9		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	10	.0006
	Inductor RF	L1	Lenox Fugle	NR2.7	217A/7.7-9	65					30%		.2	8.6	.516
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					30%		.2	8.6	.516
		L3	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	8.6	.516
		L4	Lenox Fugle	NR1.8	217A/7.7-9	65					30%		.2	8.6	.516
		L5	Lenox Fugle	NR0.47	217A/7.7-9	65					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Vehicular

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .261590 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C11		CKR05BX102KR	198B/1001.2	65	Volts	200	10	4	100%	< .1	.0005	5	.0025
		C3		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.001	5	.005
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T2	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Relay	K1	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	50	.1425
	Diode Varac.	CR1	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR2	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR3	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR4	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR5	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR6	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR7	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR8	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
	Capacitor	C10		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C14		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C15		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C23		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.0005	5	.005
		C24		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C25		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C26		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	5	.00075

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .936475 X10^{-5}

FUNCTIONAL BLOCK Preselector, Band I Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

2712 .RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C63		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	5	.0025
		C35		1501-36-102	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
	Resistor	R5		RCR05G104JS	199A/301.2	65	mW	125	< 1	<1	100%	< .1	.0002	10	.002
		R6		RCR05G622JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R7		RCR05G302JS	199A/301.2	65	mW	125	< 1	<1	100%	< .1	.0002	10	.002
		R11		RCR05G333JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R12		RCR05G104JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R13		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R14		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
	Inductor	L6	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6	.516
		L7	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6	.516
		L12	Lenox Fugle	NR10	217A/7.6-25	65					90%		.2	8.6	1.548
	Transformer	T3	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T4	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
FET	Transistor	Q1	Siliconix	U320	217A/7.4-13	.37	watts	3	0	.15	30%	.05	.608	8	1.4592
SiPNP	Transistor	Q2		JAN2N2907	217A/7.4-13	.228	mJ	400	0	.6	30%	< .01	.511	8	1.2264
	Diode, Pin	CR9	Hew. Pack.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	3.5	.28245

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Vehicular

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .676055 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tq	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F
	Capacitor	C29		CKR05BX102KR	198B/1001.2	65	volts	200	90	90	100%	.45	.001	5	.005
		C27	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C28		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C30		DV501H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C31		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C33		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C32		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C34		1501-36-62	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C40		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C36		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	5	.0025
		C37		CKR05BX102KR	198B/1001.2	65	volts	200	0	.1	30%	< .1	.0005	5	.00075
	Resistor	R15		RCR05G303JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R16		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R17		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R18		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R19		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R20		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor RF	L13	Lenox Fugle	NR-3.9	217A/7.7-9	65					30%		.2	8.6	.516
		L14	Lenox Fugle	NR-2.7	217A/7.7-9	65					30%		.2	8.6	.516
		L15	Lenox Fugle	NR-3.9	217A/7.7-9	65					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .159105 X10⁻⁵

FUNCTIONAL BLOCK Preselector, Band II Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 4

DRAWING NO. 377450, Tuner

112 TRESS ANALYSIS

ITEM # - D.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. P.
	Inductor RF	L16	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	8.6	.516
		L17	Lenox Fugle	NR0.33	217A/7.7-9	65					30%		.2	8.6	.516
RF	Transformer	T5	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T6	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Relay	K2	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	50	.1425
	Diode Varac.	CR10	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR11	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR12	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR13	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR14	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR15	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR16	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR17	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR18	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR19	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
	C	CR20	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR21	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR22	TRW	371256-1	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR23	TRW	371256-1	RADC II/369	65					100%	< .1	1.0	-	1.0
	Capaciter	C38		CKR05BX102KR	198B/1001.2	65	volts	200	10	4	100%	< .1	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Vehicular

PAGE 2 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE 1.63770 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C39		1501-36-53	217A/7.6-25	65		100	0	.1	30%	< .1	.002	5	.003
		C41		CKR05BX102KR	198B/1001.2	65		200	0	5	30%	< .1	.0005	5	.00075
		C42		CKR05BX102KR	198B/1001.2	65		200	0	5	30%	< .1	.0005	5	.00075
		C43		CKR05BX102KR	198B/1001.2	65		200	90	90	100%	.45	.001	5	.005
		C44		CKR05BX102KR	198B/1001.2	65		200	15	15	100%	< .1	.0005	5	.0025
		C45		CKR05BX102KR	198B/1001.2	65		200	0	5	30%	< .1	.0005	5	.00075
		C62		CKR05BX102KR	198B/1001.2	65		200	90	90	100%	.45	.001	5	.005
	Resistor	R21		RCR05G104JS	199A/301.2	65	mW	125	<1	<1	100%	< .1	.0002	10	.002
		R22		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	< .1	.0002	10	.002
		R23		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	10	.0006
		R24		RCR05G333JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R25		RCR05G104JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R26		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R27		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	< .1	.0002	10	.0006
	Inductor	L19	Lenox Fugle	WR10	217A/7.7-9	65					30%		.2	8.6	.516
		L18	Lenox Fugle	WR10	217A/7.7-9	65					30%		.2	8.6	.516
	Transformer	T7	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T8	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Diode Pin	CR24	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	3.5	.28245
FET	Transistor	Q3	Siliconix	U320	217A/7.4-13	.37	mW	400	0	.15	30%	.05	.608	8	1.4592

.39984

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE _____ X10^{-5}

FUNCTIONAL BLOCK Preselector, Band II Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 3 OF 4

DRAWING NO. 377450, Tuner

-112 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
SIPNP	Transistor	Q4		JAN2907	217A/7.4-13	.228	watts	3	0	.6	30%	< .01	.511	8	1.2264

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .12264 X10^{-5}

FUNCTIONAL BLOCK Preselector, Band II Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 4 OF 4

DRAWING NO. 377450, Tuner

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C46	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C48	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C49	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C56	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C47		CKR05BX102XR	198B/1001.2	65	volts	200	90	90	100%	.45	.001	5	.005
		C50		1501-36-71	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.0030
		C51		CKR05BX102UR	198B/1001.2	65	volts	200	90	90	100%	.45	.001	5	.005
		C52		CKR05BX102UR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	5	.0026
		C53		CKR05BX102UR	198B/1001.2	65	volts	200	0	.1	30%	< .1	.0005	5	.0007
	Resistor	R28		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R29		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R30		RCR05G304JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R31		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R32		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0003	10	.002
		R33		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
	Inductor RF	L20	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	8.6	.516
		L21	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	8.6	.516
		L22	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	8.6	.516
		L23	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	8.6	.516
		L24	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Vehicular

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .261765 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tq	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	& Factor	Tot. F
	Inductor RF	L25	Lenox Fugle	NR0.33	217A/7.7-9	65					30%		.2	8.6	.516
		L26	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6	.516
	RF Transformer	T9	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T10	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Relay	K3	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	50	.1425
	Diode Varec.	CR25	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR26	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR27	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR28	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR29	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR30	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR31	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR32	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	-	1.0
	Diode Pin	CR33	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.369	3.5	.28245
	Capacitor	C54		150I-36-53	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C55		CKR05BX102KR	198B/301.2	65	volts	200	10	4	100%	< .1	.0005	5	.0025
		C57		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	.0005	5	.00075
		C58		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	.0005	5	.00075
		C59		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	30%	< .1	.0005	5	.00075
		C60		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE 1.06672 X10^{-5}

FUNCTIONAL BLOCK Preselector, Band III Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C61		CKR05BX102KR	198B/1001.2	65	volts	200	90	90	100%	.45	.001	5	.005
		C8		CKR05BX102KR	198B/1001.2	65	volts	200	10	10	100%	< .1	.0005	5	.0025
	Resistor	R34		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R35		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R36		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	10	.0006
		R37		RCR05G333JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R38		RCR05G104JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R39		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R40		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L27	Lenox Fugle	NR10	217A/7.7-9	65	mW	125			90%		.2	8.6	1.548
	Transformer	T11	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T12	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
FET	Transistor	Q5	Siliconix	U320	217A/7.4-13	.37	watts	3	0	.15	30%	.05	.608	8	1.4592
SI	NP Transistor	Q6		JAN2N2907	217A/7.7-13	.228	mW	400	0	.6	30%	< .01	.511	8	1.2264

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Vehicular

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .544950 X10^{-5}

AT _____ DEGREES CENTIGRADE

.12 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C16		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	90%	< .1	.0005	-	.00225
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	0	2.5	90%	< .1	.0005	5	.00225
		C18		1501-36-58	217A/7.6-25	65	volts	100	0	2.5	90%	< .1	.002	5	.009
		C19		1501-36-55	217A/7.6-25	65	volts	100	0	.1	90%	< .1	.002	5	.009
		C20		1501-36-60	217A/7.6-25	65	volts	100	0	2.5	90%	< .1	.002	5	.009
		C21		1501-36-71	217A/7.6-25	65	volts	100	0	.1	90%	< .1	.002	5	.009
		C22		1501-36-53	217A/7.6-53	65	volts	100	0	2.5	90%	< .1	.002	5	.009
	Resistor	R10		RCR05G202JS	199A/301.2	65	mW	125	0	10	90%	<.1	.0002	10	.0018
	Inductor	L8	Lenox Fugle	NR10	217A/7.7-9	65					90%		.2	8.6	1.548
		L9	Cin. Elec.		217A/7.7-9	65					90%		.2	8.6	1.548
		L10	Cin. Elec.		217A/7.7-9	65					90%		.2	8.6	1.548
	Mixer	U1	Raleem	M6D	217A/7.4.11 7.7.9	65					90%		14.38	-	12.942
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					90%		.064	.5	.0288
		P2	Amp	85930-4 8p	RADC II/191	65					100%		.0058	.5	.0029
		P3	Amp	85930-4 10p	RADC II/191	65					100%		.00652	.5	.00326
		P4	Microdot	141-1005-0001	RADC II/191	65					30%		.064	.5	.0096
		P5	Microdot	141-1005-0001	RADC II/191	65					30%		.064	.5	.0096

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Mixer and Connectors Vehicular

PAGE 1 OF 1

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE 1.769146 X10-5

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	5	.009
		C2		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	5	.009
		C3		CKR05BX103KR	198B/1001.2	65	volts	100	1	1	100%	< .1	.0005	5	.0025
		C4		CKR05BX103KR	198B/1001.2	65	volts	100	.5	.5	100%	< .1	.0005	5	.0025
		C5		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	< .1	.0005	5	.0025
		C6		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	.05	.0005	5	.0025
	Resistor	R1		RCR05G123JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G393JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G100JS	199A/301.2	65	mW	125	2.5	2.5	100%	< .1	.0002	10	.002
	Inductor RF	L1	Lenox Fugle	NR3.3	217A/7.7-9	65					100%		.2	8.6	1.72
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					100%		.2	8.6	1.72
	Hybrid	HY1	Cin. Elec.	376259	USAECOM	65					100%		3.6120	-	3.6120
		HY2	Cin. Elec.	376259	USAECOM	65					100%		3.6120	-	3.6120
		HY3	Cin. Elec.	376259	USAECOM	65					100%		3.6120	-	3.6120
		HY4	Cin. Elec.	377668	USAECOM	65					100%		5.0344	-	5.0344
	Connecter	P1	Microdot	141-1002-0001	RADC II/191	65					90%		.064	.5	.0288
		P2	Microdot	141-1002-0001	RADC II/191	65					0		.064	.5	0
	Crystal Fil.	FL1		376270	217A/7.12-3	65					89%		4.08	-	3.6312
		FL2		376252	217A/7.12-3	65					45%		4.08	-	1.836
	Hybrid	HY5	Cin. Elec.	376261	USAECOM	65					100%		.5362	-	.5362

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Vehicular

PAGE 1 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE 2.53766 X10^{-5}

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Hybrid	HY6	Cin. Elec.	376261	USAECOM	65					100%		.5362	-	.5362
	Crystal Fil.	FL3		376270	217A/7.12-3	65					44%		4.08	-	1.7952
				376251	217A/7.12-3	65					1%		4.08	-	.0408
				376251	217A/7.12-3	65					1%		4.08	-	.0408
	Capacitor	C7		CKR05BX103KR	198B/1001.2	65	volts	200	0	0	0		.0005	5	0
	Resistor	R4		RCR05G911JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R5		RCR05G101JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R6		RCR05G274JS	199A/301.2	65			10	5	100%	< .1	.0002	10	.002
		R7		RCR05G274JS	199A/301.2	65			15	10	100%	< .1	.0002	10	.002
		R10		RCR05G151JS	199A/301.2	65			0	0	0	< .1	.0002	10	0
	Inductor	L3	Cin. Elec.	377402	217A/7.7-9	65					100%		.2	8.6	1.72
		L4	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L5	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L6	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L7	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L8	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L9	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L10	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L11	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
		L12	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE 1.9621 X10^{-5}

FUNCTIONAL BLOCK Receive IF Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377400, IF

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
SINPN	Transistor	Q1		2N5652	217A/7.4-13	.32	mW	150	2	2	100%	<.01	.269	8	2.152

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Vehicular

PAGE 3 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE .2152 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R11		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R12		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R13		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R14		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R15		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R16		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R17		RCR05G105JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Capacitor	C8		CKR06BX104KR	198B/1001.2	65	volts	200	105	125	100%	.5	.0015	5	.0075
	LSI	U7		377670	USAECOM	65					100%		3.7	-	3.7
	Hybrid	U8		377671	USAECOM	65					100%		3.6288	-	3.6288
	MSI	U9		377669	USAECOM	65					100%		1.5	-	1.5
	Connector	P3	Amp	1-85930-1 31	RADC II/19	65					100%		.01464	.5	.00732

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .885762 X10⁻⁵

FUNCTIONAL BLOCK Band and Tuner Control Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 1

DRAWING NO. 377400, IF

· 2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		NP105A-10	217A/7.6-81	65	volts	4	0	.1	90%	.02	.0011	-	.00099
		C2		VK30BA472K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	5	.0325
		C3		VK30BA103K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	5	.0325
		C5		S685R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C6		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C7		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C8		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
	Resistor	R1		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R2		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R3		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R4		RCR05G182JS	199A/301.2	65	mW	125	<.1	<.1	100%	<.1	.0002	10	.002
		R5		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	10	.002
		R6		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.3	.12
		R7		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	10	.002
		R8		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.3	.12
		R11		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R12		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R13		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R14		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R15		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .033879 X10^{-5}

FUNCTIONAL BLOCK Receive Audio Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377500, Audio

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Resistor	R16		RCR05G	199A/301.2	65	mW	125	20	20	100%	<.1	.0002	10	.002
		R17		RCR05G	199A/301.2	65	mW	125	20	20	100%	<.1	.0002	10	.002
	Hybrid	U1	Cin. Elec.	377662	USAECOM	65					100%		6.2853	-	6.2853
		U2	Cin. Elec.	377663	USAECOM	65					100%		6.0592	-	6.0592
	LSI	U4	Cin. Elec.	377664	USAECOM	65					100%		3.7	-	3.7
		U5	Cin. Elec.	377665	USAECOM	65					100%		3.7	-	3.7
	Hybrid	U6	Cin. Elec.	377666	USAECOM	65					100%		10.0954	-	10.0954
		U8	Cin. Elec.	377661	USAECOM	65					100%		4.5080	-	4.5080
	Connector	P1	Amp	2-85928-2 30p	RADC II/191	65					100%		.0144	.5	.0072

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive Audio Vehicular

PAGE 2 OF 2

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE 3.43591 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 AESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C9		F105R-10	217A/7.6-81	65	volts	20	0	5	10%	.25	.0019	-	.00019
	Resistor	R9		RCR05GXXXJS	199A/301.2	65	mW	125	0	10	10%	< .1	.0002	10	.0002
		R10		RCR05G	199A/301.2	65	mW	125	0	10	10%	< .1	.0002	10	.0002
	Hybrid	U7		376216	USAECOM	65					10%		1.7436	-	1.17436
		U10		377667	USAECOM	65					10%		.6.0718	-	.60718

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Transmit Audio Vehicular

PAGE 1 OF 1

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE .178213 X10⁻⁵

AT _____ DEGREES CENTIGRADE

-712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G562JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R11		RCR07G750JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R12		RCR07G750JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R13		RCR07G473JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R14		RCR07G473JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
	Capacitor	C45		DM5C050DP	217A/7.6-21	65	volts	300	0	15	10%	<.1	.0003	15	.0004
		C46		DM5C390GP	217A/7.6-21	65	volts	300	0	15	10%	<.1	.0003	15	.0004
		C47		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
		C48		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
		C49		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
		C50		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
	Inductor	L25	Cin. Elec.		217A/7.2-9	65					10%		.2	8.6	.172
		L26	Cin. Elec.		217A/7.2-9	65					10%		.2	8.6	.172
		L27	Delevan	1025-32	217A/7.2-9	65					10%		.2	8.6	.172
		L28	Delevan	1025-32	217A/7.2-9	65					10%		.2	8.6	.172
	Transformer	T4	Cin. Elec.		217A/7.2-9	65					10%		.2	10	.2
	Diode Si	CR7	Hew. Pac.	HP5082-2800	217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	3.5	.0735
		CR8	Hew. Pac.		217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	3.5	.0735
	Connector	P1		51-728-000-2G	RADC II/191	65					10%		.064	.5	.0032
		P2		51-728-000-2G	RADC II/191	65					10%		.064	.5	.0032

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Detector Vehicular

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .104430 X10^{-5}

AT _____ DEGREES CENTIGRADE

712 ...ESS ANALYSIS

ITEM # - S.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Connector	P3	MCDD1-9545-1.0 9p	RADC II/191		65					10%		.00616	.5	.000308

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Detector Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0000308 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C15		ATC100B4R3BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	18	.01134
		C16		DM5C130DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C17		DM5C330DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C18		ATC10089R1BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	18	.01134
		C19		DM5C430DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C20		DM5C101GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C21		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C22		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C23		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C8		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00006
		C11		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00006
	Inductor	L5	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L6	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L7	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L8	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L9	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L10	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
	Relay	K1		GB-831C-5F	217A/7.10-5	65					3%		.101	50	.1515
		K2		GB-831C-5F	217A/7.10-5	65					3%		.101	50	.1515
		C14		CKR05BX103KR	198B/1001.2	65	volts	200	24	24	100%	.24	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .0638885 X10^{-5}

FUNCTIONAL BLOCK Filter, Band I Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C42		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
	Inductor	L11	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L12	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
	Diode Si	CR1		JAN1N4148	217A/9.4-11	.266	mA	75	0	< 5	3%	< .1	.23	3.5	.02415
		CR4		JAN1N4148	217A/8.4-11	.266	mA	75	0	< 5	3%	< .1	.23	3.5	.02415
	Capacitor	C16'		DM5C120DP	217A/7.6-21	65	volts	300	0	1	3%	.1	.0003	15	.000135

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0151715 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RELIABILITY ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	λ Factor	Tot. F. R
	Capacitor	C24		ATC100B3R0BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C25		DM5C180DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C26		DM5C240DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C27		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C28		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C29		DM5C360DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C30		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C31		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C32		DM5C130DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C9		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
		C12		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
	Inductor	L13	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L14	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L15	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L16	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L17	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L18	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
	Relay	K3	Teledyne	411D-26	217A/7.10-5	65					3%		.101	50	.1515
		K4	Teledyne	411D-26	217A/7.10-5	65					3%		.101	50	.1515
	Capacitor	C43		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Vehicular

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .062526 X10^{-5}

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode Si	CR2		JAN1N4148	217A/7.4-11	.266	mA	75	0	< 5	3%	< .1	.23	3.5	.02415
		CR5		JAN1N4148	217A/7.4-11	.266	mA	75	0	< 5	3%	< .1	.23	3.5	.02415
	Capacitor	C31'		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C32'		DM5C100DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .004857 $X10^{-5}$

AT _____ DEGREES CENTIGRADE

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F
	Capacitor	C33		ATC100B2R0BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C34		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C35		ATC100B9R18RW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C36		ATC100B9R1BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C37		DM5C100DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C38		DM5C510DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C39		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C40		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C41		ATC100B9R1BRW	217A/7.6-59	65	volts	300	0	30	3%	.1	.021	18	.01134
		C10		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
		C13		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
	Inductor	L19	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L20	Gin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L21	Gin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L22	Gin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L23	Gin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L24	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
	Relay	K5	Teledyne	411D-26	217A/7.10-5	65					3%		.101	50	.1515
		K6	Teledyne	411D-26	217A/7.10-5	65					3%		.101	50	.1515
	Capacitor	C44		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Vehicular

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0058875 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C53		DM5C560DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.00001
		C54		DM5C510DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.00001
	Inductor	L34	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L35	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L36	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L37	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L38	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
	Diode Si	CR3		JAN1N4148	217A/7.4-11	.266	mA	75	0	5	3%	<.1	.23	3.5	.02415
		CR6		JAN1N4148	217A/7.4-11	.266	mA	75	0	5	3%	<.1	.23	3.5	.02415
	Capacitor	C35'		ATC100B8R0BRW	217A/7.6-59	65	volts	300	0	1	3%	.1	.021	18	.01134
		C37'		DM5C130DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.00013
		C41'		DM5C100DP	217A/7.6-25	65	volts	300	0	30	3%	.1	.0003	15	.00013

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .031818 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	[illegible] F.
	Capacitor	C1		CKR05BX103KR	198B/1001.2	65	volts	100	0	10	10%	.1	.0005	5	.00025
		C2		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5	.00025
		C3		CKR06BX105KR	198B/1001.2	65	volts	50	0	12	10%	.24	.0005	5	.00025
		C4		CKR06BX105KR	198B/1001.2	65	volts	50	0	24	10%	.48	.0015	5	.00075
		C5		DM5C101JP	217A/7.6-21	65	volts	300	0	10	10%	< 1	.0003	15	.00045
		C6		CKR06BX334KR	198B/1001.2	65	volts	50	0	10	10%	.2	.0005	5	.00025
		C7		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5	.00025
		C51		DM5C101GP	217A/7.6-21	65	volts	300	0	< 1	10%	< .1	.0003	15	.00045
		C52		DM5C181GP	217A/7.6-21	65	volts	300	0	< 1	10%	< .1	.0003	15	.00045
		C53		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5	.00025
		C54		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	100%	.24	.0005	5	.0025
		C55		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5	.00025
	Resistor	R1		RCR07G104JS	199A/301.2	65	mW	250	0	1	10%	< .1	.0002	10	.0002
		R2		RCR07G100JS	199A/301.2	65	mW	250	0	12	10%	.1	.0002	10	.0002
		R3		.2 ohm ½W	217A/7.5-25	65	mW	500	0	130	10%	.26	.19	.3	.0057
		R4		RCR07G752JS	199A/301.2	65	mW	250	0	3	10%	< .1	.0002	10	.0002
		R5		RCR07G252JS	199A/301.2	65	mW	250	0	< 1	10%	< .1	.0002	10	.0002
	Inductor	L1	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	8.6	.172
		L2	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6	.172
		L3	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	8.6	.172

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .052685 X10^{-5}

FUNCTIONAL BLOCK Power Amplifier Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 3

DRAWING NO. 377255, Power Amplifier

2712 TRESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F
	Inductor	L4	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	8.6	.172
		L29	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6	.172
		L30	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6	.172
		L31	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6	.172
		L32	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6	.172
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					10%		.2	10	.2
		T2	Cin. Elec.		217A/7.7-9	65					10%		.2	10	.2
		T3	Cin. Elec.		217A/7.7-9	65					10%		.2	10	.2
	Diode Si	CR1		1N4148	217A/7.4-11	.428	mW	100	20	20	10%	.2	347	3.5	.123
		CR5		1N4148	217A/7.4-11	.428	mW	100	20	20	10%	.2	.347	3.5	.123
	Hybrid	A1	Cin. Elec.	377686	USAECOM	65					10%		1.1683	-	.11683
		A2	Cin. Elec.	377687	USAECOM	65					10%		3.1892	-	.31892
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					10%		.064	.5	.0032
		P2	Amp	85930-4 20 pin	RADC II/191	65					10%		.0103	.5	.000515
		P3	Microdot	141-1005-0001	RADC II/191	65					10%		.064	.5	.0032
		P4		MCDD1-9P465-150 9 pins	RADC II/191	65					100%		.00619	.5	.00309
	Resistor	R6		RCR07 JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	10	.0002
		R7		RCR07 JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	10	.0002
		R8		RCR07G122JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	10	.0002
		R9		RCR07G472JS	199A/301.2	65	mW	250	0	10	10%	< .1	.0002	10	.0002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Vehicular

PAGE 2 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE .215256 X10-5

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F. R
	Resistor	R10		RCR07G103JS	199A/301.2	65	mW	250	0	4	10%	.1	.0002	10	.0002
		R11		RCR07G513JS	199A/301.2	65	mW	250	0	1	10%	<.1	.0002	10	.0002
		R12		RCR07G513JS	199A/301.2	65	mW	250	0	2	10%	<.1	.0002	10	.0002
	Inductor	L33	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6	.172
		L34	Delevan	1025-32	217A/7.7-9	65					10%		.2	8.6	.172
		L35		1025-32	217A/7.7-9	65					10%		.2	8.6	.172
		L37		1025-32	217A/7.7-9	65					10%		.2	8.6	.172
	Transistor	Q1		JAN2N2222A	217A/7.4-13	.228	mW	500	0	.1	10%	<.1	.210	8	.168
	Hybrid	A3	Cin. Elec.	377688	USAECOM	65					10%		.6902		.06903
	Connector	P5	Microdot	141-1005-0001	RADC II/191	65					10%		.064	.5	.0032
		P6	Microdot	141-1005-0001	RADC II/191	65					10%		.064	.5	.0032
		P7	Selectro	51-751-0000-2	RADC II/191	65					10%		.064	.5	.0032
		P8	Selectro	51-751-0000-2	RADC II/191	65					10%		.064	.5	.0032
	Resistor	R13		RCR07JS	199A/301.2	65	mW	250	0	< 1	10%	<.1	.0002	10	.0002
		R14		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	10	.0002
		R15		RCR07JS	199A/301.2	65	mW	250	0	10	.10%	<.1	.0002	10	.0002
	Relay	K7		GB-831C-5E	217A/7.10-5	65					100%		.301	50	15.05
		K8		GB-831C-5E	217A/7.10-5	65					100%		.018	50	.9
		K9		GB-831C-5E	217A/7.10-5	65					10%		.301	50	1.505

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Vehicular

PAGE 3 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE 1.839402 X10^{-5}

AT _____ DEGREES CENTIGRADE

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C2		Y103A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C3		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03	-	.03
		C4		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03	-	.03
		C6		Y154A-05	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	Resistor	R1		RCR05 JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05 JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L1	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	8.6	1.72
		L6	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	8.6	1.72
		L7	Lenox Fugle	NR-3.9	217A/7.7-9	65					100%		.2	8.6	1.72
		L8	Lenox Fugle	NR-12	217A/7.7-9	65					100%		.2	8.6	1.72
		L9	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	8.6	1.72
		L10	Lenox Fugle	NR-10	217A/7.7-9	65					10%		.2	8.6	.172
		L11	Lenox Fugle	NR-3.3	217A/7.7-9	65					10%		.2	8.6	.172
	Transformer	T1	Cin. Elec.	377354	217A/7.7-9	65					100%		.2	10	2
		T2	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	10	2
		T3	Cin. Elec.	377353	217A/7.7-9	65					100%		.2	10	2
		T4	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	10	2
		T5	Cin. Elec.	377352	217A/7.7-9	65					100%		.2	10	2
		T6	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	10	2

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Vehicular

PAGE 1 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 2.10275 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Transformer	T7	Cin. Elec.	377356	217A/7.7-9	65					10%		.2	10	.2
	Hybrid	HY2	Cin. Elec.	377677	USAECOM	65					100%		12.9479	-	12.9479
		HY4	Cin. Elec.	377675	USAECOM	65					33%		.5264	-	.1737
		HY5	Cin. Elec.	377675	USAECOM	65					33%		.5264	-	.1737
		HY6	Cin. Elec.	377675	USAECOM	65					33%		.5264	-	.1737
		HY7	Cin. Elec.	377676	USAECOM	65					100%		.6762	-	.6762
	Capacitor	C15		Y474A-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C16		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	< .1	.0005	5	.0025
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	< .1	.0005	5	.0025
		C18		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	-	.0022
		C19		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	-	.0022
		C20		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	-	.0022
	Resistor	R3		RCR05 JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R7		RCR05102JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.002	10	.002
		R8		RCR05102JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.002	10	.002
		R9		RCR05103JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.002	10	.002
		R10		RCR05103JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.002	10	.002
		R11		RCR05103JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.002	10	.002
		R12		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	< .1	.002	10	.002
		R13		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	< .1	.002	10	.002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Vehicular

PAGE 1 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 1.437934 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R16		RCR05104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
	Int. Circuit	IC1	Plessey	376152	RADC II/413	65					100%		1.512	-	1.512
	Hybrid	HY8		377079	USAECOM	65					100%		.5460	-	.5460
	Resistor	R18		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0302	10	.002
		R19		RCR05 JS	199A/301.2	65	mW	125	12	12	100%	.1	.0602	10	.002
	Connector	P1	Amp	85930-4 20p	RADC II/191	65					100%		.0103	.5	.00515
		P2	Microdot	141-1005-0001	RADC II/191	65					100%		.064	.5	.032
		P3	Microdot		RADC II/191	65					100%		.064	.5	.032
	Transformer	T8		377357	217A/7.7-9	65					10%		.2	10	.2
	Diode, Var.	CR1		DKV6523B	Cin. Elec.	65					100%		.3	-	.2
		CR2		DKV6523B	Cin. Elec.	65					100%		1.0	-	1.0
		CR3		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR4		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR5		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR6		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR7		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR8		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR9		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR10		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR11		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Vehicular

PAGE 3 OF 4

DRAWING NO. 377350, Synth./RF Modulator

TOTAL FAILURE RATE 1.333315 X10-5

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - E.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF SJ	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
	Diode, Var.	CR12		MV6524B	Cin. Elec.	65					100%		1.0	-	1.0

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Vehicular

PAGE 4 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .10 X10-5

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C7	Comp. Inc.	Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C8		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C9		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C10		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	Resistor	R4		RCR05G	199A/301.2	65	mW	125	2	2	100%	< .1	.0002	10	.002
		R5		RCR05G101JS	199A/301.2	65	mW	125	20	10	100%	< .1	.0002	10	.002
		R6		RCR05G	199A/301.2	65	mW	125	1	1	100%	< .1	.0002	10	.002
		R7		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L2	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	8.6	1.72
		L3	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	8.6	1.72
	Int. Circuit	IC1	CTS Knights	376153 TCXO	RADC II/413	65					100%		1.2096	-	1.2096
		IC2		Ref. 4/4 N	USAECOM	65					100%		3.7	-	3.7
	Resistor	R20		RCR05 JS	199A/301.2	65	[illegible]	125	1	1	100%	< .1	.0002	10	.002
	Capacitor	C11		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C12		G106A-20	217A/7.6-81	65	volts	15	5.6	5.6	100%	.37	.003	-	.003
		C13		S685A-20	217A/7.6-81	65	volts	35	20	20	100%	.57	.011	-	.011
		C14		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C5		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C22		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Vehicular

PAGE 1 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .85196 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
	Capacitor	C23		Y103A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	Resistor	R14		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R15		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L4	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	8.6	1.72
		L5	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	8.6	1.72
	Hybrid	HY1	Cin. Elec.	377673	USAECOM	65					100%		.5700	-	.5700
	Capacitor	C24	Comp. Inc.	S156R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C25	Comp. Inc.	S156R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C26	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C27	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C28	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C29	Comp. Inc.	L336R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C30	Comp. Inc.	S226R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C31	Comp. Inc.	S226R-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		L6	Cin. Elec.	55017/AS	217A/7.7-9	65							.2	8.6	1.72
		L7	Cin. Elec.	LF101Q1	217A/7.7-9	65							..	8.6	1.72

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Vehicular

PAGE 2 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 1.1[illegible] X10^{-5}

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F. R
	Capacitor	C1		U103R-10	217A/7.6-81	65	volts	20	5	5	100%	.25	.0019	-	.0019
		C2		U104R-10	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	Diode Si	CR1		JAN1N4148	217A/7.4-11	267	mA	75	< 1	< 1	100%	< .1	.233	3.5	.5255
	Connector	P1	Microdot	MCDD1-25P6A1	RADC II/191	65					100%		.01249	.5	.00624
	Hybrid	U1		377691	USAECOM	65					100%		15.5671	1	15.5671
	Pin Light	D51		376048	217A/7.12-3	65					100%		7	-	7
		D52		376048	217A/7.12-3	65					100%		7	-	7
		D53		376048	217A/7.12-3	65					100%		7	-	7
		D54		376048	217A/7.12-3	65					100%		7	-	7
		D55		376048	217A/7.12-3	65					100%		7	-	7

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Frequency Control Vehicular

PAGE 1 OF 1

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE 5.110724 X10⁻⁵

AT _____ DEGREES CENTIGRADE

712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Resistor, Var	R1	Allen Bradley	CS1T048F103AA	217A/7.5-21	65	watts	0.5	.1	.1	100%	.2	.1	50	5.0
	Switch	S1		376027-1	RADC II/217	65							.01	-	.096
		S2		376027-2	RADC II/217	65					100%		.09[illegible]	-	.21
		S3		376029	RADC II/217	65					.5%		.21	-	.0010[illegible]
		S4	Grayhill	30-251B	RADC II/217	65					100%		.03	-	.03
	Connector		Microdot	142-1002-0001	RADC II-191	65					100%		.064	.5	.032
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
			Microdot	142-1002-0001	RADC II-191	65					100%		.064	.5	.032
			Microdot	142-1002-0001	RADC II-191	65					90%		.064	.5	.0288
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
			Microdot	142-1002-0001	RADC II-191	65					90%		.064	.5	.0288
			Microdot	142-1002-0001	RADC II-191	65					90%		.064	.5	.0288
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
			Microdot	142-1002-0001	RADC II-191	65					10%		.064	.5	.0032
				377103 33p	RADC II-191	65					100%		.0218	.5	.0109
			I.T.T. Can.	ES-C-211499 5p	RADC II-191	65					100%		.00315	.5	.00158
				377141 6p	RADC II-191	65					100%		.00516	.5	.00258

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Vehicular

PAGE 1 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .552491 X10^{-5}

AT _____ DEGREES CENTIGRADE

12 STRESS ANALYSIS

ITEM # - B M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Tb	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Connector			UG-912/U	RADC II-191	65					100%		.064	.5	.032
	Switch	S5		376029	RADC II/217	65					.5%		.21	.5	.00105
		S6		51MX23029-3A2	RADC II/217	65					100%		.098	.5	.095
	Fuse		Little Fuse	277-004	217A/7.12-3	65					100%		.1	-	.1
	Diode			1N914	217A/7.4-11	.267	mA	75	0	2	100%	< .1	.233	3.5	.5255
	Resistor			RCR05G103JS	199A/301.2	65	mA	125		10	100%	< .1	.0002	10	.002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Vehicular

PAGE 2 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .075855 X10-5

AT _____ DEGREES CENTIGRADE

-112 AESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C6	Comp Inc.	L336R20	217A/7.6-81	65	volts	6	5	5	100%	.85	.039	-	.039
		C7	Comp Inc.	F305R-20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C8	Comp Inc.	F305R-20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C9	Comp Inc.	F305R-20	217A/7.6-81	65	volts	6	5	5	100%	.83	.039	-	.039
		C10	Comp Inc.	M106R-20	217A/7.6-81	65	volts	6	0	4	100%	.67	.023	-	.023
	Inductor	L3	Cin. Elec.	377556	217A/7.7-9	65					100%		.2	10	2
	Transformer	T2	Cin. Elec.	377553-1	217A/7.7-9	65					100%		.2	10	2
		T3	Cin. Elec.	377553-2	217A/7.7-9	65					100%		.2	10	2
	MSI	Z2	Cin. Elec.	377657	RADC II/413	65					100%		3.3264	-	3.3264
	Diode Si	CR3		1N5802	217A/7.4-11	.315	amps	2.5	.12	.12	100%	.048	.455	12	5.46
	Diode Si	CR4		1N5802	217A/7.4-11	.366	amps	2.5	.25	.25	100%	.1	.542	12	6.51
	Resistor	R3		RW81U2R00F	217A/7.5-15	65	watts	2	.044	.044	100%	< .1	.0087	50	.435
		R4		RW81U1R50F	217A/7.5-15	65	watts	1	.1	.1	100%	.1	.0087	50	.435
	MSI	Z3		377656	RADC II/413	65					100%		2.1164	-	2.1164

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 4 & 5 Volt Regulators Vehicular

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE 2.44622 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° of Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.R.
	Capacitor	C3		CL67BJ470MPG	217A/7.6-47	65	volts	75	24	24	100%	.33	.023	5	.115
		C4			217A/7.6-81	65	volts	15	10	10	100%	.67	.02	-	.02
		C5			217A/7.6-81	65	volts	15	10	10	100%	.67	.02	-	.02
	Inductor	L2	Cin. Elec.	377555-2	217A/7.7-9	65					100%		.2	10	2
	Transformer	T1	Cin. Elec.	377552	217A/7.7-9	65					100%		.2	10	2
	MSI	Z1	Cin. Elec.	377658	RADC II/413	65					100%		2.1168	-	2.1168
	Diode Si	CR2		JAN1N5802	217A/7.4-11	.337	amps	2.5	.175	.175	100%	.07	.493	12	5.91
	Resistor	R1		RW81U1R00F	217A/7.5-15	65	watts	.1	< .1	< .1	100%	< .1	.0087	50	.435
		R2		RW81U1R00F	217A/7.5-15	65	watts	1	.022	.022	100%	< .1	.0087	50	.435
	Diode, Si	CR5		JAN1N3611	217A/7.4-11	.32	amps	1	0	0	100%	< .1	.269	3.5	.942

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 10 Volt Regulator Vehicular

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE 1.39933 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F. R.
	Capacitor	C1		CKR06BX104KR	198B/1001.2	65	volts	100	24	24	100%	.24	.0005	5	.0025
		C2		M39003/01-2379	217A/7.6-81	65	volts	50	24	24	100%	.48	.0059	-	.0059
		C11		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C12		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C13		P105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C14		P105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C15		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C16		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C17		M155R-20	217A/7.6-81	65	volts	35	20	0	100%	.57	.011	-	.011
		C18		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	5	.030
		C19		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	5	.030
	Inductor	L4	Cin. Elec.	377555-3	217A/7.7-9	65					100%		.2	10	2
		L5	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	10	2
		L6	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	10	2
		L7	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	10	2
		L8	Cin. Elec.	377555-5	217A/7.7-9	65					100%		.2	10	2
		L1	Cin. Elec.	377555-1	217A/7.7-9	65					100%		.2	10	2
	Transformer	T4	Cin. Elec.	377554	217A/7.7-9	65					100%		.2	10	2
	Diode Si	CR6		5R0	217A/7.4-11	.305	mW	500	34	34	100%	.038	.26	3.5	.91
		CR7		5R0	217A/7.4-11	.305	mW	500	34	34	100%	.038	.26	3.5	.91

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE 1.60324 X10⁻⁵

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377550, Power Supply

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode Si	CR8		JAN1N4148	217A/7.4-11	.334	mA	75	5	5	100%	.067	.278	3.5	.973
		CR9		JAN1N4148	217A/7.4-11	.334	mA	75	5	5	100%	.067	.278	3.5	.973
		CR12		JAN1N4148	217A/7.4-11	.307	mA	75	3	3	100%	.04	.26	3.5	.91
		CR13		JAN1N4148	217A/7.4-11	.307	mA	75	3	3	100%	.04	.26	3.5	.91
		CR14		JAN1N3611	217A/7.4-11	.32	amps	1.0	.0003	.0003	100%	< .1	.269	3.5	.942
		CR15		JAN1N3611	217A/7.4-11	.32	amps	1.0	.0003	.0003	100%	< .1	.269	3.5	.942
	MSI	Z4		377659	RADC II/413	65					100%		2.4192	-	2.4192
	Connector	P1		20p	RADC II/191	65					100%		.0103	.5	.00515
	Diode	CR10		JAN1N4148	217A/7.4-11	.334	mA	75	5	5	100%	.067	.278	3.5	.973
		CR11		JAN1N4148	217A/7.7-11	.334	mA	75	5	5	100%	.067	.278	3.5	.973
		CR16		JAN1N3611	217A/7.7-11	.39	amps	1.0	.07	.07	100%	.07	.315	3.5	1.112
	Relay	K1	Teledyne	432-3.3KR	217A/7.10-5	65							.301	50	15.05

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE 2.618235 X10^{-5}

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 2

DRAWING NO. 377550, Power Supply

-102-

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
91 NPN	Transistor	Q9		2N2219A	217A/7.4-13	.353	mw	800	100	100	100%	.125	.29	8	2.32
	Fuse	F1	Littlefuse	275-007	217A/7.12-3	65	amps	7			100%		.1		.1
	Fuse	F2	Littlefuse	275-004	217A/7.12-3	65	amps	4			100%		.1		.1
	Capacitor	C3		CKR05BX104KR	198B/1001.2	65	volts	50	10	10	100%	.2	.0005	5	.0025
		C4		M39003/01	217A/7.6-81	65	volts	50	25	25	100%	.5	.0065	10	.065
	Resistor	R1		RCR05G682JS	199A/301.2	65	mw	125	0	0	100%	<.1	.0002	10	.002
		R2		RCR05G392JS	199A/301.2	65	mw	125	0	0	100%	<.1	.0002	10	.002
		R13		RCR07G180JS	199A/301.2	65	mw	250	25	25	100%	.1	.0002	10	.002
		R14		RCR07G180JS	199A/301.2	65	mw	250	25	25	100%	.1	.0002	10	.002
		R15		RCR05G751JS	199A/301.2	65	mw	125	0	.2	50%	<.1	.0002	10	.002
		R16		RCR05J751JS	199A/301.2	65	mw	125	0	.2	50%	<.1	.0002	10	.002
		R17		RCR05G433JS	199A/301.2	65	mw	125	1	1	9%	<.1	.0002	10	.002
		R18		RCR05G103JS	199A/301.2	65	mw	125	.14	.14	9%	<.1	.0002	10	.002
		R19		RCR05G105JS	199A/301.2	65	mw	125	<1	<1	100%	<.1	.0002	10	.002
		R20		RCR05G105JS	199A/301.2	65	mw	125	<1	<1	100%	<.1	.0002	10	.002
		R21		RCR05G206JS	199A/301.2	65	mw	125	<1	<1	100%	<.1	.0002	10	.002
	Diode, SI ZEN	CR15		1N965A	217A/7.4-11	.228	mw	400	15	15	100%	<.1	.63	1	1.89
	Diode, SI ZEN	CR16		1N4148	217A/7.4-11	.228	ma	400	0	1	50%	<.1	.21	3.5	.367
	Diode, SI	CR18		1N4148	217A/7.4-11	.228	ma	75	0	1	50%	<.1	.21	3.5	.367
SI PNP	Transistor	Q10		2N2907A	217A/7.4-13	.228	mw	400	0	10	50%	<.1	.52	8	2.05

TEMP. _____ DATE 15 June 1971

FUNCTIONAL BLOCK Parent Board

PAGE 2 OF 3

DRAWING NO. Modular Applique, [illegible]

TOTAL FAILURE RATE .727786 X10⁻⁵

AT _____ DEGREES CENTIGRADE

(12 RELIABILITY ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.R.
SIPNP	Transistor	Q11		2N2907A	217A/[illegible].4-13	.228	mw	400	0	10	50%	[illegible].1	.52	8	2.05
	Transistor	Q12	Motorola	2N6053	217A/[illegible].4-13	.228	W	100	0	6	5%	[illegible].1	1.05	8	.042
	Transistor	Q13	Motorola	2N6053	217A/[illegible].4-13	.228	W	100	0	6	5%	[illegible].1	1.05	8	.042
	Transistor	Q14	Motorola	2N6053	217A/[illegible].4-13	.228	W	100	0	6	5%	[illegible].1	1.05	8	.042
	Transistor	Q15	Motorola	2N6053	217A/[illegible].4-13	.228	W	100	0	6	5%	[illegible].1	1.05	8	.042
	Transistor	Q16	Motorola	2N6053	217A/[illegible].4-13	.228	W	100	0	6	5%	[illegible].1	1.05	8	.042
SINPN	Transistor	Q17		2N[illegible]	217A/[illegible].4-13	.228	W	50	0	3	9%	[illegible].1	.020	8	.1024
	Transformer	T1	GEC		217A/[illegible]-9	65					100%		[illegible]	10	2
	Int. Ckt.	U1	Motorola	MC1452BAL	RADC II/416	65					100%				1.258
	LSI	U2		376715	USAECOM	65					100%		3.7		3.7
	Connector	P1	Continental	MM44-22-P[illegible]	RADC II/191	65					100%		.0178	5	.0089
		P3	Continental	MM30-22S[illegible]	RADC II/191	65					100%		.0072	5	.0036
	Resistor	R8		RCR07G101JS	199A/301.2	65	mW	125	1	1	100%	.1	.0005	10	.005

TEMP. _____ DATE [illegible]

FUNCTIONAL BLOCK Parent Board

PAGE 3 OF 3

DRAWING NO. Vehicular Applique 376700

TOTAL FAILURE RATE .[illegible] X10⁻⁵

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		DM10F510GP	217A/7.6-21	65	V	300	0	< 1	9%	< .1	.0003	15	.0004
		C2		DM05F910GP	217A/7.6-21	65	V	300	0	< 1	9%	< .1	.0003	15	.0004
		C3		F423	217A/7.6-33	65	V	500	0	30	9%	< .1	.009		.00081
		C4		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C5		DM10F131JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C6		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C7		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C8		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C9		DM10F131JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C10		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C11		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003	15	.0004
		C12		CKR05BX103KR	198B/1001.2	65	V	100	0	24	9%	.24	.0005	5	.00023
		C13		CKR05BX103KR	198B/1001.2	65	V	100	0	24	9%	.24	.0005	5	.00023
		C14		CKR06BX105KR	198B/1001.2	65	V	50	0	24	9%	.48	.0013	5	.00059
		C15		CKR06BX105KR	198B/1001.2	65	V	50	0	24	9%	.48	.0013	5	.00059
		C16		F423	217A/7.6-33	65	V	500	0	60	9%	.12	.011		.0099
	Connector	P1		51-051-0000	RADCII/191	65					9%		.064	.5	.00288
		P2		51-028-3196	RADCII/191	65					9%		.064	.5	.00288
		P3		SMS-20PGD20P	RADCII/191	65					9%		.0102	.5	.000459

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 1 OF 4

DRAWING NO. 376800, 40 Watt P.A.

TOTAL FAILURE RATE .0022569 X10^{-5}

AT _____ DEGREES CENTIGRADE

4712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. P.
	Inductor	L1	CEC		217A/7.7-9	65					9%		.2	8.6	.1548
		L2	CEC		217A/7.7-9	65					9%		.2	8.6	.1548
		L3	CEC		217A/7.7-9	65					9%		.2	8.6	.1548
		L4	CEC		217A/7.7-9	65					9%		.2	8.6	.1548
		L5	CEC		217A/7.7-9	65					9%			8.6	.1548
		L6		VK200-20/4B	217A/7.7-9	65					9%		.2	8.6	.1548
		L7		VK200-20/4B	217A/7.7-9	65					9%		.2	8.6	.1548
		L8		VK200-20/4B	217A/7.7-9	65					9%		.2	8.6	.1548
		L9		VK200-20-4B	217A/7.7-9	65					9%		.2	8.6	.1548
	Transformer	T1	CEC		217A/7.7-9	65					9%		.2	10	.18
		T2	CEC		217A/7.7-9	65					9%		.2	10	.18
		T3	CEC		217A/7.7-9	65					9%		.2	10	.18
		T4	CEC		217A/7.7-9	65					9%		.2	10	.18
		T5	CEC		217A/7.7-9	65					9%		.2	10	.18
		T6	CEC		217A/7.7-9	65					9%		.2	10	.18
Transistor, Si NPN		Q1		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8	.396
		Q2		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8	.396
		Q3		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8	.396
		Q4		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8	.396
	Resistor	R1		RCR32G510JS	199A/301.2	65	w	1	0	.2	9%	.2	.0003		.0002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 2 OF 4

DRAWING NO. 176400, 40 Watt PA

TOTAL FAILURE RATE .405747 X10^{-5}

AT _____ DEGREES CENTIGRADE

-112 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Resistor	R3		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R4		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R5		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R6		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R15		106-7046	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R16		106-7046	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R17		106-7046	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R18		106-7046	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R23		RCR42G240JS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R11		RCR42G240JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R31		RCR42G121JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
	Thermistor	R24		GA52J16	217A/7.12-3	65	w				9%		.3		.027
	Resistor	R2		RCR32G510JS	199A/301.2	65	w	1	0	.2	9%	.2	.0003	10	.00027
		R7		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R8		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R9		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R10		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R11		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R12		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R13		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 3 OF 4

DRAWING NO. 376800, 40 Watt P.A.

TOTAL FAILURE RATE .003213 X10-5

AT _____ DEGREES CENTIGRADE

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Resistor	R14		RCR20G100KS	199A/301.2	65	w	½	0	.1	9%	.2	.0003	10	.00027
		R19		106-7046	199A/301.2	65	w	¼	0	.1	9%	.2	.0003	10	.00027
		R20		106-7046	199A/301.2	65	w	¼	0	.1	9%	.2	.0003	10	.00027
		R21		106-7046	199A/301.2	65	w	¼	0	.1	9%	.2	.0003	10	.00027
		R23		RCR42G121JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R28		RCR42G121JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R29		RCR42G121JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R30		RCR42G121JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R22		106-7046	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R25		RCR42G24055	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R26		RCR42G24055	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 4 OF 4

DRAWING NO. 376800, 40 Watt P.A.

TOTAL FAILURE RATE .000297 X10^{-5}

AT _____ DEGREES CENTIGRADE

42 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C5		CYR10C4R3R	198B/701.2	65	V	300	0	< 1	3%	< .1	.00001	18	5.4×10^{-6}
		C6		CYR10C130CR	198B/701.2	65	V	300	0	< 1	3%	< .1	.00001	18	5.4×10^{-6}
		C7		CYR10C 120 CR	198B/701.2	65	V	300	0	< 1	3%	< .1	.00001	18	5.4×10^{-6}
		C8		CYR10C 160 CR	198B/701.2	65	V	300	0	< 1	3%	< .1	.00001	18	5.4×10^{-6}
		C9		CYR10C 180 CR	198B/701.2	65	V	300	0	< 1	3%	< .1	.00001	18	5.4×10^{-6}
		C10		CYR10C 180 CR	198B/701.2	65	V	300	0	< 1	3%	< .1	.00001	18	5.4×10^{-6}
		C11		CYR10C 150 CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C12		CYR10C 220 DR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C13		CYR10C 220 DR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C14		CYR10C 101GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C15		CYR10C 910GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C16		CYR10C 910GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C17		CYR10C 100CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C18		CYR10C 330GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8×10^{-6}
		C56		CKR05BX103UR	198B/1001.1	65	V	100	0	24	3%	.24	.0005	5	.000075
		C57		CKR05BX103UR	198B/1001.1	65	V	100	0	24	3%	.24	.0005	5	.000075
		C58		CKR05BX103UR	198B/1001.1	65	V	100	0	24	3%	.24	.0005	5	.000075
		C68		CKR05BX102KR	198B/1001.1	65	V	200	0	.6	97%	< .1	.0005	5	.0024
		C69		CKR05BX102KR	217A/7.7-9	65	V	200	.6	.6	100%	< .1	.0005	5	.0025
	Inductor	L5	CEC		217A/7.7-9	65					3%		.2	8.6	.0516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK

PAGE 1 OF 2 Filter, Band 1

DRAWING NO. 376800, 40 Watt PA

TOTAL FAILURE RATE .00568438 $\times 10^{-5}$

AT _____ DEGREES CENTIGRADE

.12 S .SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_A	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
		L6	[illegible]		217A/7.7-9	65					3%		.2	8.6	.0516
		L7	[illegible]		217A/7.7-9	65					3%		.2	8.6	.0516
		L8	CRC		217A/7.7-9	65					3%		.2	8.6	.0516
		L21	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L22	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L23	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L24	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
1NPN	Transistor	Q1		JAN2N2222A	217A/7.4-13	.227	mw	500	0	1.5	97%	< .01	.210	[illegible]	1.63
		Q2		JAN2N2219A	217A7.4-13	.247	mw	800	0	15	3%	.02	.220	8	.0528
	Diode, Si	CR7		JAN1N4148	217A/7.4-11	.227	ma	75	0	< 1	3%	< .01	.210	3.5	.021
		CR8		JAN1N4148	217A/7.4-11	.227	ma	75	0	< 1	3%	< .01	.210	3.5	.021
		CR16		JAN1N4148	217A/7.4-11	.227	ma	75	0	1	3%	< .01	.21	3.5	.021
		CR17		JAN1N4148	217A/7.4-11	.227	ma	75	0	1	97%	< .01	.21	3.5	.713
	Relay	K5	HI-G	2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
		K8	HI-G	2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
	Resistor	R9		RCR07G223KS	199A/301.2	65	mw	250	22	22	100%	< .1	.0002	10	.002
		R10		RCR20G472JS	199A/301.2	65	mw	500	122	122	100%	.24	.00035	10	.0035

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band 1

PAGE 2 OF 2

DRAWING NO. 376X000, [illegible] West PA

TOTAL FAILURE RATE .312850 X10-5

AT _____ DEGREES CENTIGRADE

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tb	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE		E Factor	Tot. F.
	Capacitor	C19		CYR10C3ROR	198B/701.2	65	V	300	0	<1	3%	<.1	.00001	18		5.4x10
		C20		CYR10C180CR	198B/701.2	65	V	300	0	<1	3%	<.1	.00001	18		5.4x10
		C21		CYR10C240DR	198B/701.2	65	V	300	0	<1	3%	<.1	.00001	18		5.4x10
		C22		CYR10C130CR	198B/701.2	65	V	300	0	<1	3%	<.1	.00001	18		5.4x10
		C23		CYR10C200DR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C24		CYR10C150CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C25		CYR10C160CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C26		CYR10C360GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C27		CYR10C330GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C28		CYR10C330CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C29		CYR10C330GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C30		CYR10C220DR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C31		CYR10C430GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C32		CYR10C100CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C33		CYR10C130GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C34		CYR10C5ROR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18		10.8x10
		C59		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5		.000075
		C60		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5		.000075
		C61		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5		.000075
		C70		CKR05BX102KR	198B/1001.2	65	V	200	0	.6	9?%	<.1	.0005	5		.000075

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II

PAGE 1 OF 2

DRAWING NO. 1.05MHz 40 Watt PA

TOTAL FAILURE RATE .00004512 X10-5

AT _____ DEGREES CENTIGRADE

,12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	λ Factor	Tot. F. R.
		C71		CKR05BX102KR	198B/1001.2	65	v	200	.6	.6	100%	<.1	.0005	5	.0025
	Inductor	L9	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L10	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L11	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L12	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L25	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
		L26	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
		L27	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
		L28	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
S1NPN	Transistor	Q3		JAN2N2222A	217A/7.4-13	.227	mw	500	0	1.5	97%	<.01	.21	8	1.63
		Q4		JAN2N2219A	217A/7.4-13	.247	mw	800	0	15	3%	.02	.22	8	.052B
	Diode S1	CR9		JAN4148	217A/7.4-1	.227	ma	75	0	<1	3%	<.01	.21	3.5	.021
		CR10		JAN4148	217A/7.4-1	.227	ma	75	0	<1	3%	<.01	.21	3.5	.021
		CR18		JAN4148	217A/7.4-1	.227	ma	75	0	1	3%	<.01	.21	3.5	.021
		CR19		JAN4148	217A/7.4-1	.227	ma	75	0	1	97%	<.01	.21	3.5	.021
	Resistor	R11		RCR07G223KS	199A/301.2	65	mw	250	22	22	100%	<.1	.0002	10	.002
		R12		RCR20G472JS	199A/301.2	65	mw	500	122	122	100%	.24	.00035	10	.0035
	Relay	K8	HI-G	2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
		K9	HI-G	2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter , Band II

PAGE 2 OF 2

DRAWING NO. [illegible], 40 Watt PA

TOTAL FAILURE RATE .31626 X10⁻⁵

AT _____ DEGREES CENTIGRADE

4712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C35		CYR10C2R2R	198B/701.2	65	V	300	0	≤1	3%	< .1	.0000	18	5.4x10
		C36		CYR10C130CR	198B/701.2	65	V	300	0	≤1	3%	< .1	.0000	18	5.4x10
		C37		CRY10C6R2R	198B/701.2	65	V	300	0	≤1	3%	< .1	.0000	18	5.4x10
		C38		CRY10C110CR	198B/701.2	65	V	300	0	≤1	3%	< .1	.0000	18	5.4x10
		C39		CRY10C9R1CR	198B/701.2	65	V	300	0	≤1	3%	< .1	.0000	18	5.4x10
		C40		CRY10C100CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C41		CRY10C100CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C42		CRY10C130CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C43		CRY10C510GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C44		CRY10C470GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C45		CRY10C470GR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C46		CRY10C6R8R	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C47		CRY10C100CR	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C48		CRY10C5R1R	198B/701.2	65	V	300	0	60	3%	.2	.00002	18	10.8x10
		C62		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5	.000075
		C63		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5	.000075
		C64		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5	.000075
		C72		CKR05BX102KR	198B/1001.2	65	V	200	0	36	9%	< .1	.0005	5	.0024
		C73		CKR05BX102KR	198B/1001.2	65	V	200	.6	.6	100%	< .1	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter Board IIA

PAGE 1 OF 1

DRAWING NO. [illegible]

TOTAL FAILURE RATE .0005248 X10⁻⁵

AT ____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Inductor	L13	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L14	CEC		217A/7.7-9	65				[illegible]	3%		.2	8.6	.0516
		L15	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L16	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L29	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
		L30	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
		L31	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
		L32	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
SINPN	Transistor	Q5		JAN2N2222A	217A/7.4-13	.22?	mw	500	0	1.5	97%	< .01	.21	8	1.63
		Q6		JAN2N2219A	217A/7.4-13	.24?	mw	800	0	15	3%	.02	.22	8	.0528
	Diode SI	CR11		JAN1N6148	217A/7.4-1	.22?	ma	75	0	< 1	3%	< .01	.21	3.5	.021
		CR12		JAN1N6148	217A/7.4-1	.22?	ma	75	0	< 1	3%	< .01	.21	3.5	.021
		CR20		JAN1N6148	217A/7.4-1	.22?	ma	75	0	1	3%	< .01	.21	3.5	.021
		CR21		JAN1N6148	217A/7.4-1	.22?	ma	75	0	1	97%	< .01	.21	3.5	.713
	Relay	K6	HTG	2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
		K10		2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
	Resistor	R13		RCR07G223JS	199A/301.2	65	mw	250	22	22	100%	< .1	.0002	10	.002
		R14		RCR07G472JS	199A/301.2	65	mw	500	122	122	100%	.24	.00035	10	.0035

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter Band III

PAGE 2 OF 2

DRAWING NO. [illegible] 40 Watt PA

TOTAL FAILURE RATE .318010 X10^{-5}

AT _____ DEGREES CENTIGRADE

112 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. °C T_A	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR05BX103KR	198B/1001.2	65	U	100	0	24	10%	.24	.0005	5	.00025
		C4		CKR05BX103KR	198B/1001.2	65	U	100	0	24	10%	.24	.0005	5	.00025
		C49		DM10	217A/7.6-21	65	U	500	0	30	9%	≤.1	.00003	15	.00004
		C50		DM10	217A/7.6-21	65	U	500	0	30	9%	≤.1	.00003	15	.00004
		C51		CKR05BX102UR	198B/1001.2	65	U	200	0	8	9%	≤.1	.0005	5	.000225
		C52		CKR05BX102UR	198B/1001.2	65	U	200	0	8	9%	≤.1	.0005	5	.000225
		C53		CK05BX102UR	198B/1001.2	65	U	200	0	8	9%	≤.1	.0005	5	.000225
		C54		CK05BX102UR	198B/1001.2	65	U	200	0	8	9%	≤.1	.0005	5	.000225
		C55		CK05BX102UR	198B/1001.2	65	U	200	0	8	9%	≤.1	.0005	5	.000225
		C66		CKR06BX105KR	198B/1001.2	65	U	50	20	20	100%	.4	.0005	5	.0025
		C67		CKR06BX104KR	198B/1001.2	65	U	100	24	24	100%	.24	.0005	5	.0025
	Resistor	R1		RCR05G562JS	199A/301.2	65	mw	125	0	12	9%	.1	.0002	10	.00018
		R2		RCR05G510JS	199A/301.2	65	mw	125	0	12	9%	.1	.0002	10	.00018
		R3		RCR05G510JS	199A/301.2	65	mw	125	0	12	9%	.1	.0002	10	.00018
		R4		RCR05G472JS	199A/301.2	65	mw	125	0	12	9%	.1	.0002	10	.00018
		R5		RCR05G472JS	199A/301.2	65	mw	125	0	12	9%	.1	.0002	10	.00018
		R15		RCR07G102JS	199A/301.2	65	mw	250	9	9	100%	≤.1	.0002	10	.002
		R16		RCR42G472JS	199A/301.2	65	mw	1000	150	150	100%	.15	.00025	10	.0025
		R17		RCR07G102JS	199A/301.2	65	mw	250	9	9	100%	≤.1	.0002	10	.002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK [illegible]

PAGE 1 OF 3

DRAWING NO. 27n500, 40 Watt PA

TOTAL FAILURE RATE .0014105 X10⁻⁵

AT _____ DEGREES CENTIGRADE

REES ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Ts	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F. R.
	Resistor	R18		RCR07G241JS	199A/301.2	65	mw	250	3.8	3.8	100%	<.1	.0002	10	.002
		R19		RCR07G JS	199A/301.2	65	mw	250	10	10	100%	<.1	.0002	10	.002
		R20		RCR07G392JS	199A/301.2	65	mw	250	62	62	100%	.155	.00035	10	.0035
		R21		RCR07G392JS	199A/301.2	65	mw	250	10	10	100%	<.1	.0002	10	.002
		R22		RCR07G222JS	199A/301.2	65	mw	250	8	8	100%	<.1	.0002	10	.002
		R23		RCR07G222JS	199A/301.2	65	mw	250	40	40	100%	.12	.00024	10	.0024
		R24		RCR07G123JS	199A/301.2	65	mw	250	20	20	100%	<.1	.0002	10	.002
		R25		RCR07G103JS	199A/301.2	65	mw	250	40	40	100%	.12	.00024	10	.0024
		R26		RCR07G103JS	199A/301.2	65	mw	250	58	58	100%	.24	.00035	10	.0035
		R27		PW81UR100F	217A/7.5-15	65	mw	1000	100	100	100%	.1	.0087	50	.435
		R28		RCR07G100JS	199A/301.2	65	mw	250	.036	.036	100%	<.1	.0002	10	.002
		R29		RCR07G512	199A/301.2	65	mw	250	.07	.07	100%	<.1	.0002	10	.002
		R30		RCR07G 202	199A/301.2	65	mw	250	1	1	100%	<.1	.0002	10	.002
	Inductor	L1	Deleval	100-122K	217A/7.7-9	65					9%		.2	8.6	.154m
		L2		100-122K	217A/7.7-9	65					9%		.2	8.6	.154m
		L17	CEC		217A/7.7-9	65					9%		.2	8.6	.154m
		L18	CEC		217A/7.7-9	65					9%		.2	8.6	.154m
		L19	Deleven	1025-32	217A/7.7-9	65					9%		.2	8.6	.154m
		L20	Deleven	1025-32	217A/7.7-9	65					9%		.2	8.6	.154m
		L33		VK200-20-4B	217A/7.7-9	65					9%		.2	8.6	.154m

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK ALC

PAGE 2 OF 3

DRAWING NO. 376800, 40 Watt PA

TOTAL FAILURE RATE .154460 X10^{-5}

AT _____ DEGREES CENTIGRADE

.12 S .SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode, Si	CR1		JAN1N914	217A/7.4-11	.227	ma	75	0	1	9%	≤.01	.21	3.5	.066
		CR2		JAN1N914	217A/7.4-11	.227	ma	75	0	1	9%	≤.01	.21	3.5	.066
		CR4		JAN1N914	217A/7.4-11	.227	ma	75	0	1	9%	≤.01	.21	3.5	.066
		CR6		HP5082-2800	217A/7.4-11	.227	mw	250	0	1	9%	≤.01	.21	3.5	.066
	Zen	CR13		1N750A	217A/7.4-11	.356	mw	400	40	40	100%	.1	.87	3	2.6
		CR14		JAN1N4148	217A/7.4-11	.327	ma	75	8	8	100%	.1	.274	3.5	.96
		CR15		JAN914	217A/7.4-11	.227	ma	75	3	3	100%	≤.01	.25	3.5	.735
	Transistor, Si PNP	Q7		JAN2N2907A	217A/7.4-13	.287	mw	400	24	24	100%	.06	.246	8	1.968
		Q8		JAN2N2907A	217A/7.4-13	.287	mw	400	24	24	100%	.06	.246	8	1.968
		Q9		JAN2N2907A	217A/7.4-13	.287	mw	400	24	24	100%	.06	.246	8	1.968
		Q10		JAN2N2907A	217A/7.4-13	.287	mw	400	24	24	100%	.06	.246	8	1.968
	Transformer	T1	GEC		217A/7.2-95	65					9%	-	.2	10	.18
	Relay	K1	HI-G	2K-2A-126	217A/7.10-5	65					9%		.301	50	15.05
		K4	HI-G	2K-2A-126	217A/7.10-5	65					100%		.301	50	15.05
	Connector	P2	Continental	SM11-20SGDD[11P]	RADC11/191	65					100%		.0072	.5	.0036
		P6	Continental	SM5-20SGDD[5P]	RADC11/191	65					100%		.0048	.5	.002
		P4	Sealectro	51-051-0000	RADC11/191	65					100%		.0064	.5	.0032
		P5	Sealectro	51-051-0000	RADC11/191	65					100%		.0064	.5	.0032
		P3	Sealectro	51-051-0000	RADC11/191	65					100%		.0064	.5	.0032
		P1	Sealectro	51-021-3196	RADC11/191	65					100%		.0064	.5	.0032

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK ALC

PAGE 3 OF 3

DRAWING NO. 176300, 40 Watt PA

TOTAL FAILURE RATE 4.27298 X10⁻⁵

AT _____ DEGREES CENTIGRADE

(12 'RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Connector	P1		UG-912 /U	RADCII/191	65					100%		.064	.5	.032
	Connector	P2		MS3114E18-32S	RADCII/191	85					100%		.0144	.5	.0077
	Connector	P3		37710483P	RADCII/191	65					100%		.0144	.5	.0077
	Connector	P4		MS3114E8-33P	RADCII/191	65					100%		.0144	.5	.0077
	Connector	P5		371336 6P.	RADCII/191	65					100%		.0052	.5	.0026
	Switch	SW1	Grayhill	50MD36-01-2 12P	217A/7.10-?	65					100%		.275	18	4.95
	Connector	P6	Continental	MM20-22PGD	RADCII/191	65					100%		.0022	.5	.0036
	Connector	P7	Continental	[illegible]E	RADCII/191	65					100%		.0178	.5	.0089
	Transistor	Q1	Motorola	MJ4032	217A/7.4-13	.228	W	150	0	1.5	100%	.21	1.04	8	8.32
	Transformer	T2	CEC		217A/7.7-9	65							.2	10	2.0

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis

PAGE 1 OF 1

DRAWING NO. Vehicular Applique, 376700

TOTAL FAILURE RATE 1.534024 X10-5

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Tb	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Connector	P1		MS3114E12-10P	RADCII/191	65					100%		.0067	.5	.0033
		P2		UG-912/U	RADCII/191	65					100%		.0064	.5	.032
		P3		UG-912/U	RADCII/191	65					100%		.0064	.5	.032
		P4		51-028-3196	RADCII/191	65					100%		.0064	.5	.032
		P5		SM11-20PCD	RADCII/191	65					100%		.0064	.5	.032
		P6		51-028-3196	RADCII/191	65					100%		.0064	.5	.032

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis

PAGE 1 OF 1

DRAWING NO. 376800, 40 Watt PA

TOTAL FAILURE RATE .01633 X10^{-5}

AT _____ DEGREES CENTIGRADE

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		B01Z5U1G2P	217A/7.6-57	65	v	200	0	24	1%	.12	.0057	5	.000285
		C2		CC32CG680G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C4		CC30CH470G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C5		CC20CK270G	217A/7.6-23	65	v	500	0	60	10%	.12	.0022	5	.0011
		C7-1		CC30CH390G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C7-2		CC20CH180G	217A/7.6-25	65	v	500	0	60	20%	.12	.0022	5	.0022
		C8-1		CC20CK220G	217A/7.6-25	65	v	500	0	60	20%	.12	.0022	5	.0022
		C8-2		6.8 pf CER	217A/7.6-57	65	v	200	0	60	10%	.3	.0084	5	.0042
		C9-1		12pf Cer.	217A/7.6-57	65	v	200	0	60	10%	.3	.0084	5	.0042
		C9-2		PC40H180	217A/7.6-69	65	v	200	0	60	10%	.3	.093	20	.186
		C10-1		15pf Cer.	217A/7.6-57	65	v	200	0	60	10%	.3	.0084	5	.0042
		C10-2		PC40H180	217A/7.6-69	65	v	200	0	60	10%	.3	.0093	20	.186
		C11		CC30CH390G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C12		CC32CG680G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C13-1		CC30CH390G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C13-2		CC20CH180G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C14-1		CC32CG101G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C14-2		CC32CG101G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C15-1		CC32CG101G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C15-2		CC32CG680G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C16-1		CC20CH180G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Vehicular Antenna

PAGE 1 OF 3

DRAWING NO. 376900

TOTAL FAILURE RATE .0403585 X10⁻⁵

AT _____ DEGREES CENTIGRADE

.12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
		C16-2		CC20CH240G	217A/7.6-25	65	\	500	0	60	10%	.12	.0022	5	.0011
		C16-3		CC20CH390G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C16-4		PC40H180	217A/7.6-69	65	v	200	0	60	10%	.3	.093	20	.186
		C17-1		PC40H180	217A/7.6-69	65	v	200	0	60	10%	.3	.093	20	.186
		C17-2		CC20CH180G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C18		CC20CH240G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C19		CC20CH100G	217A/7.6-25	65	v	500	0	60	10%	.12	.0022	5	.0011
		C20		5pf Cer.	217A/7.6-57	65	v	200	0	60	10%	.3	.0084	5	.0042
		C21		PC40H180	217A/7.6-69	65	v	200	0	60	10%	.3	.0093	20	.186
	Inductor	L1	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L2	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L3	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L5	CEC		217A/7.7-9	65							.2	8.6	.172
		L6	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L7	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L8	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L9	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L10	CEC		217A/7.7-9	65					10%		.2	8.6	.172
		L12	CEC		217A/7.7-9	65					10%		.2	8.6	.172

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Vehicular Antenna

PAGE 2 OF 2

DRAWING NO. 37690

TOTAL FAILURE RATE .22877 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factors	Tot. F. R.
		L15	CEC	339871-3	217A/7.7-9	65					10%		.X	8.6	.172
		L16	CEC	SMB542073	217A/7.7-9	65					100%		.2	8.6	1.72
	Rot. Solenoid				217A/7.8-9	65					1%		6	2	.12
	Switch	SW1		5 deck 12 pos	217A/7.10-7	65					100%		.07	18	1.36
S1NPN	Transistor	Q1		2N1701	217A/7.4-13	.428	w	25	0	5	1%	.2	.694	8	.05552
	Connector	J1		SMB542104 9 Pin	RADCII/191	65					100%		.064	.5	.032
		J2		SMB542062	RADCII/191	65					100%				.00617
	Inductor	L13	CEC	339871-1	217A/7.7-9	65					10%		.2	8.6	.172
		L14	CEC	339871-2	217A/7.7-9	65					10%		.2	8.6	.172

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Vehicular Antenna

PAGE 3 OF 3

DRAWING NO. 376900

TOTAL FAILURE RATE .380969 X10^{-5}

AT _____ DEGREES CENTIGRADE

APPENDIX III

STRESS ANALYSIS - AIRBORNE

2 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C2		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C4	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C5		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C7	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C6		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C12		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C13	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C9		CKR05BX102KR	198B/1001.2	70	volts	200	15	15	100%	.075	.0005	5	.0025
	Resistor	R1		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R4		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R8		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R9		RCR05G202JS	199A/301.2	70	mW	125	0	10	30%	< .1	.0002	10	.0006
-	Inducter RF	L1	Lenox Fugle	NR2.7	217A/7.7-9	70					30%		.2	8.6	.516
		L2	Lenox Fugle	NR3.3	217A/7.7-9	70					30%		.2	8.6	.516
		L3	Lenox Fugle	NR3.9	217A/7.7-9	70					30%		.2	8.6	.516
		L4	Lenox Fugle	NR1.8	217A/7.7-9	70					30%		.2	8.6	.516
		L5	Lenox Fugle	NR0.47	217A/7.7-9	70					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Airborne

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .261710 X10^{-5}

AT _____ DEGREES CENTIGRADE

-112 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C11		CKR05BX102KR	198B/1001.2	70	Volts	200	10	4	100%	< .1	.0005	5	.0025
		C3		CKR05BX102KR	198B/1001.2	70	Volts	200	90	90	100%	.45	.001	5	.005
	Transformer	T1	Cin. Elec		217A/7.7-9	70					30%		.2	10	.6
		T2	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Relay	K1	Teledyne	421D-26	217A/7.10-5	70					30%		.0093	50	.1425
	Diode Varac.	CR1	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR2	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR3	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR4	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR5	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR6	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR7	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR8	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
	Capacitor	C10		CKR05BX102KR	198B/1001.2	70	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C14		CKR05BX102KR	198B/1001.2	70	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C15		CKR05BX102KR	198B/1001.2	70	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C23		CKR05BX102KR	198B/1001.2	70	Volts	200	90	90	100%	.45	.001	5	.005
		C24		CKR05BX102KR	198B/1001.2	70	Volts	200	15	15	100%	< .1	.0005		.0025
		C25		CKR05BX102KR	198B/1001.2	70	Volts	200	15	15	100%	< .1	.0005		.0025
		C26		CKR05BX102KR	198B/1001.2	70	Volts	200	0	5	30%	< .1	.0005		.00075

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .712475 X10-5

FUNCTIONAL BLOCK Preselector, Band I Airborne

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

(12 IESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C63		CKR05BX102KR	198B/1001.2	70	volts	200	15	15	100%	< .1	.0005	5	.0025
		C35		1501-36-102	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
	Resistor	R5		RCR05G104JS	199A/301.2	70	mW	125	< 1	<1	100%	< .1	.0002	-	.002
		R6		RCR05G622JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R7		RCR05G302JS	199A/301.2	70	mW	125	< 1	<1	100%	< .1	.0002	10	.002
		R11		RCR05G333JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R12		RCR05G104JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R13		RCR05G303JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R14		RCR05G303JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
	Inductor	L6	Lenox Fugle	NR10	217A/7.7-9	70					30%		.2	8.6	.516
		L7	Lenox Fugle	NR10	217A/7.7-9	70					30%		.2	8.6	.516
		L12	Lenox Fugle	NR10	217A/7.6-25	70					90%		.2	8.6	1.548
	Transformer	T3	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T4	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
FET	Transistor	Q1	Siliconix	U320	217A/7.4-13	.42	watts	3	0	.15	30%	.05	.666	8	1.5984
SIPNP	Transistor	Q2		JAN2N2907	217A/7.4-13	.257	mW	400	0	.6	30%	< .01	.575	8	1.38
	Diode, Pin	CR9	Hew. Pack.	HP5082-3168	217A/7.4-11	.36	mW	250	0	1.4	30%	< .01	.297	3.5	.3118

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Airborne

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .70827 X10-5

AT _____ DEGREES CENTIGRADE

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C29		CKR05BX102KR	198B/1001.2	70	volts	200	90	90	100%	.45	.001	5	.005
		C27	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C28		1501-36-49	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C30		DV501H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C31		1501-36-49	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C33		DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C32		1501-36-49	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C34		1501-36-62	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C40		DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C36		CKR05BX102KR	198B/1001.2	70	volts	200	15	15	100%	.075	.0005	5	.0025
		C37		CKR05BX102KR	198B/1001.2	70	volts	200	0	.1	30%	< .1	.0005	5	.0007
	Resistor	R15		RCR05G303JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R16		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R17		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R18		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R19		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R20		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor RF	L13	Lenox Fugle	NR-3.9	217A/7.7-9	70					30%		.2	8.6	.516
		L14	Lenox Fugle	NR-2.7	217A/7.7-9	70					30%		.2	8.6	.516
		L15	Lenox Fugle	NR-3.9	217A/7.7-9	70					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Airborne

PAGE 1 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .159225 X10-5

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tq	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor RF	L16	Lenox Fugle	NR2.2	217A/7.7-9	70					30%		.2	8.6	.516
		L17	Lenox Fugle	NR0.33	217A/7.7-9	70					30%		.2	8.6	.516
RF	Transformer	T5	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T6	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Relay	K2	Teledyne	421D-26	217A/7.10-5	70					30%		.0093	50	.1425
	Diode Varac.	CR10	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR11	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR12	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR13	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR14	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR15	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR16	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR17	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR18	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR19	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR20	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR21	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR22	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR23	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
	Capacitor	C38		CKR05BX102KR	198B/1001.2	70	volts	200	10	4	100%	< .1	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Airborne

PAGE 2 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE 1.24570 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C39		1501-36-53	217A/7.6-25	70		100	0	.1	30%	< .1	.002	5	.003
		C41		CKR05BX102KR	198B/1001.2	70		200	0	5	30%	< .1	.0005	5	.00075
		C42		CKR05BX102KR	198B/1001.2	70		200	0	5	30%	< .1	.0005	5	.00075
		C43		CKR05BX102KR	198B/1001.2	70		200	90	90	100%	.45	.001	5	.005
		C44		CKR05BX102KR	198B/1001.2	70		200	15	15	100%	< .1	.0005	5	.0025
		C45		CKR05BX102KR	198B/1001.2	70		200	0	5	30%	< .1	.0005	5	.00075
		C62		CKR05BX102KR	198B/1001.2	70		200	90	90	100%	.45	.001	5	.005
	Resistor	R21		RCR05G104JS	199A/301.2	70	mW	125	<1	<1	100%	< .1	.0002	10	.002
		R22		RCR05G302JS	199A/301.2	70	mW	125	<1	<1	100%	< .1	.0002	10	.002
		R23		RCR05G202JS	199A/301.2	70	mW	125	0	10	30%	< .1	.0002	10	.0006
		R24		RCR05G333JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R25		RCR05G104JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R26		RCR05G303JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
		R27		RCR05G303JS	199A/301.2	70	mW	125	0	<1	30%	< .1	.0002	10	.0006
	Inductor	L19	Lenox Fugle	HR10	217A/7.7-9	70					30%		.2	8.6	.516
		L18	Lenox Fugle	HR10	217A/7.7-9	70					30%		.2	8.6	.516
	Transformer	T7	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T8	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Diode Pin	CR24	Hew. Pac.	HP5082-3168	217A/7.4-11	.36	mW	250	0	1.4	30%	< .01	.297	3.5	.31185
FET	Transistor	Q3	Siliconix	U320	217A/7.4-13	.42	mW	400	0	.15	30%	.05	.666	8	1.5984

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Airborne

PAGE 3 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .41670 X10^{-5}

AT _____ DEGREES CENTIGRADE

712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
SIPNP	Transistor	Q4		JAN2907	217A/7.4-13	.257	watts	3	0	.6	30%	< .01	.575	8	1.38

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Airborne

PAGE 4 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RAYE .138 X10-5

AT _____ DEGREES CENTIGRADE

12 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C46	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C48	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C49	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C56	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C47		CKR05BX102XR	198B/1001.2	70	volts	200	90	90	100%	.45	.001	5	.005
		C50		1501-36-71	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.0030
		C51		CKR05BX102UR	198B/1001.2	70	volts	200	90	90	100%	.45	.001	5	.005
		C52		CKR05BX102UR	198B/1001.2	70	volts	200	15	15	100%	< .1	.0005	5	.0025
		C53		CKR05BX102UR	198B/1001.2	70	volts	200	0	.1	30%	< .1	.0005	5	.00075
	Resistor	R28		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R29		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R30		RCR05G304JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R31		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R32		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R33		RCR05G303JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
	Inductor RF	L20	Lenox Fugle	NR3.9	217A/7.7-9	70					30%		.2	8.6	.516
		L21	Lenox Fugle	NR2.2	217A/7.7-9	70					30%		.2	8.6	.516
		L22	Lenox Fugle	NR3.9	217A/7.7-9	70					30%		.2	8.6	.516
		L23	Lenox Fugle	NR2.2	217A/7.7-9	70					30%		.2	8.6	.516
		L24	Lenox Fugle	NR10	217A/7.7-9	70					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Airborne

PAGE 1 OF 3

DRAWING NO. 377450, TUNER

TOTAL FAILURE RATE .261885 X10^{-5}

AT _____ DEGREES CENTIGRADE

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	λ Factor	Tot. F. R.
	Inductor RF	L25	Lenox Fugle	NR0.33	217A/7.7-9	70					30%		.2	8.6	.516
		L26	Lenox Fugle	NR10	217A/7.7-9	70					30%		.2	8.6	.516
	RF Transformer	T9	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T10	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Relay	K3	Teledyne	421D-26	217A/7.10-5	70					30%		.0093	50	.1425
	Diode Varec.	CR25	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR26	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR27	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR28	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR29	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR30	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR31	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR32	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
	Diode Pin	CR33	Hew. Pac.	HP5082-3168	217A/7.4-11	.36	mW	250	0	1.4	30%	< .01	.297	3.5	.3118
	Capacitor	C54		150i-36-53	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002		.003
		C55		CKR05BX102KR	198B/301.2	70	volts	200	10	4	100%	< .1	.0005	5	.0025
		C57		CKR05BX102KR	198B/301.2	70	volts	200	0	5	30%	< .1	.0005	5	.00075
		C58		CKR05BX102KR	198B/301.2	70	volts	200	0	5	30%	< .1	.0005	5	.00075
		C59		CKR05BX102KR	198B/1001.2	70	volts	200	0	5	30%	< .1	.0005	5	.00075
		C60		CKR05BX102KR	198B/1001.2		volts	200	15	15	100%	< .1	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Airborne

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .845660 X10-5

AT _____ DEGREES CENTIGRADE

-112 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ts	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C61		CKR05BX102KR	198B/1001.2	70	volts	200	90	90	100%	.45	.001	5	.005
		C6		CKR05BX102KR	198B/1001.2	70	volts	200	10	10	100%	< .1	.0005	5	.0025
	Resistor	R34		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R35		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R36		RCR05G202JS	199A/301.2	70	mW	125	0	10	30%	< .1	.0002	10	.0006
		R37		RCR05G333JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R38		RCR05G104JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R39		RCR05G303JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R40		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L27	Lenox Fugle	NR10	217A/7.7-9	70	mW	125			90%		.2	8.6	1.548
	Transformer	T11	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T12	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	FET Transistor	Q5	Siliconix	U320	217A/7.4-13	.42	watts	3	0	.15	30%	.05	.666	8	1.5984
	SI ENP Transistor	Q6		JAN2N2907	217A/7.7-11	.257	mW	400	0	.6	30%	< .01	.575	8	1.38

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Airborne

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .57423 X10-5

AT _____ DEGREES CENTIGRADE

.12 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C16		CKR05BX102KR	198B/1G01.2	70	volts	200	0	5	90%	< .1	.0005	5	.00225
		C17		CK3053X102KR	198B/1001.2	70	volts	200	0	2.5	90%	< .1	.0005	5	.00225
		C18		1501-36-58	217A/7.6-25	70	volts	100	0	2.5	90%	< .1	.002	5	.009
		C19		1501-36-55	217A/7.6-25	70	volts	100	0	.1	90%	< .1	.002	5	.009
		C20		1501-36-60	217A/7.6-25	70	volts	100	0	2.5	90%	< .1	.002	5	.009
		C21		1501-36-71	217A/7.6-25	70	volts	100	0	.1	90%	< .1	.002	5	.009
		C22		1501-36-53	217A/7.6-53	70	volts	100	0	2.5	90%	< .1	.002	5	.009
	Resistor	R10		RCR05G202JS	199A/301.2	70	mW	125	0	10	90%	<.1	.0002	10	.0018
	Inductor	L8	Lenox Fugle	NR10	217A/7.7-9	70					90%		.2	8.6	1.548
		L9	Cin. Elec.		217A/7.7-9	70					90%		.2	8.6	1.548
		L10	Cin. Elec.		217A/7.7-9	70					90%		.2	8.6	1.548
	Mixer	U1	Raleem	M6D	217A/7.4.11 7.7.9	70					90%		15.05	-	13.545
	Connector	P1	Microdot	141-1005-0001	RADC II/191	70					90%		.036	.5	.0162
		P2	Amp	85930-4 8p	RADC II/191	70					100%		.00387	.5	.001935
		P3	Amp	85930-4 10p	RADC II/191	70					100%		.00435	.5	.002175
		P4	Microdot	141-1005-0001	RADC II/191	70					30%		.036	.5	.0054
		P5	Microdot	141-1005-0001	RADC II/191	70					30%		.036	.5	.0054

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Mixer and Connectors Airborne

PAGE 1 OF 1

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE 1.827141 X10^{-5}

AT _____ DEGREES CENTIGRADE

-712 ...RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		15C1-36-60	217A/7.6-25	70	volts	100	0	1	90%	< .1	.002	5	.009
		C2		1501-36-60	217A/7.6-25	70	volts	100	0	1	90%	< .1	.002	5	.009
		C3		CKR05BX103KR	198B/1001.2	70	volts	100	1	1	100%	< .1	.0005	5	.0025
		C4		CKR05BX103KR	198B/1001.2	70	volts	100	.5	.5	100%	< .1	.0005	5	.0025
		C5		CKR05BX103KR	198B/1001.2	70	volts	100	5	5	100%	< .1	.0005	5	.0025
		C6		CKR05BX103KR	198B/1001.2	70	volts	100	5	5	100%	.05	.0005	5	.0025
	Resistor	R1		RCR05G123JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G393JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G100JS	199A/301.2	70	mW	125	2.5	2.5	100%	< .1	.0002	10	.002
	Inductor RF	L1	Lenox Fugle	NR3.3	217A/7.7-9	70					100%		.2	8.6	1.72
		L2	Lenox Fugle	NR3.3	217A/7.7-9	70					100%		.2	8.6	1.72
	Hybrid	HY1	Cin. Elec.	376259	USAECOM	70					100%		2.7864	-	2.7864
		HY2	Cin. Elec.	376259	USAECOM	70					100%		2.7864	-	2.7864
		HY3	Cin. Elec.	376259	USAECOM	70					100%		2.7864	-	2.7864
		HY4	Cin. Elec.	377668	USAECOM	70					100%		5.0344	-	5.0344
	Connector	P1	Microdot	141-1002-0001	RADC II/191	70					90%		.036	.5	.0162
		P2	Microdot	141-1002-0001	RADC II/191	70					10%		.036	.5	.0018
	Crystal Fil.	FL1		376270	217A/7.12-3	70					89%		4.08	-	3.6312
		FL2		376252	217A/7.12-3	70					45%		4.08	-	1.836
	Hybrid	HY5	Cin. Elec.	376261	USAECOM	70					100%		.5362	-	.5362

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Airborne

PAGE 1 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE 2.2889 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Hybrid	HY6	Cin. Elec.	376261	USAECOM	70					100%		.5362	-	.5362
	Crystal Fil.	FL3		376270	217A/7.12-3	70					44%		4.08	-	1.7952
				376251	217A/7.12-3	70					1%		4.08	-	.0408
				376251	217A/7.12-3	70					1%		4.08	-	.0408
	Capacitor	C7		CKR05BX103KR	198B/1001.2	70	volts	200	0	1	10%	< .1	.0005	5	.0025
	Resistor	R4		RCR05G911JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R5		RCR05G101JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R6		RCR05G274JS	199A/301.2	70			10	5	100%	< .1	.0002	10	.002
		R7		RCR05G274JS	199A/301.2	70			15	10	100%	< .1	.0002	10	.002
		R10		RCR05G151JS	199A/301.2	70			0	1	10%	< .1	.0002	10	.002
	Inductor	L3	Cin. Elec.	377402	217A/7.7-9	70					100%		.2	8.6	1.72
		L4	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L5	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L6	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L7	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L8	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L9	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L10	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L11	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72
		L12	Lenox Fugle	NR82	217A/7.7-9	70					100%		.2	8.6	1.72

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Airborne

PAGE 2 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE 1.96255 X10⁻⁵

AT _____ DEGREES CENTIGRADE

-112 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
SINPN	Transistor	Q1		2N5652	217A/7.4-13	.36		150	2	2	100%	<.01	.297	8	2.376

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Airborne

PAGE 3 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE .2376 X10^{-5}

AT _____ DEGREES CENTIGRADE

STRESS ANALYSIS

ITEM # - S.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R11		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R12		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R13		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R14		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R15		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R16		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R17		RCR05G105JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Capacitor	C8		CKR06BX104KR	198B/1001.2	70	volts	200	105	105	100%	.5	.0015	5	.0075
	LSI	U7		377670		70					100%		3.7	-	3.7
	Hybrid	U8		377671	USAECOM	70					100%		4.8706	-	4.80706
	MSI	U9		377669		70					100%		1.5	-	1.5
	Connector	P3	Amp	1-85930-1 31p	RADC II/191	70					100%		.00976	.5	.00488

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Band and Tuner Control Airborne

PAGE 1 OF 1

DRAWING NO. 377400, IF

TOTAL FAILURE RATE 1.009698 X10-5

AT _____ DEGREES CENTIGRADE

(12 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
	Capacitor	C1		NP105A-10	217A/7.6-81	70	volts	4	0	.1	90%	.02	.0012	-	.00108
		C2		VK30BA472K	217A/7.6-57	70	volts	50	10	10	100%	.2	.0071	5	.0355
		C3		VK30BA103K	217A/7.6-57	70	volts	50	10	10	100%	.2	.0071	5	.0355
		C5		S685R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	-	.003
		C6		J226R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	-	.003
		C7		J226R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	-	.003
		C8		J226R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	-	.003
	Resistor	R1		RCR05G274JS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R2		RCR05G274JS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R3		RCR05G274JS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R4		RCR05G182JS	199A/301.2	70	mW	125	<.1	.1	100%	<.1	.0002	10	.002
		R5		RCR05G514JS	199A/301.2	70	mW	125	.5	.5	100%	<.1	.0002	10	.002
		R6		RN55D	217A/7.5-27	70	mW	125	.5	.5	100%	<.1	.42	.3	.126
		R7		RCR05G514JS	199A/301.2	70	mW	125	.5	.5	100%	<.1	.0002	10	.002
		R8		RN55D	217A/7.5-27	70	mW	125	.5	.5	100%	<.1	.42	.3	.126
		R11		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R12		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R13		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R14		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R15		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	10	.002

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .035808 X10^{-5}

FUNCTIONAL BLOCK Receive Audio Airborne

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377500, Audio

712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	λ Factor	Tot. F.
	Resistor	R16		RCR05G	199A/301.2	70	mW	125	20	20	100%	<.1	.0002	10	.002
		R17		RCR05G	199A/301.2	70	mW	125	20	20	100%	<.1	.0002	10	.002
	Hybrid	U1	Cin. Elec.	377662	USAECOM	70					100%		4.8487	-	4.8487
		U2	Cin. Elec.	377663	USAECOM	70					100%		4.6742	-	4.6742
	LSI	U4	Cin. Elec.	377664	USAECOM	70					100%		3.7	-	3.7
		U5	Cin. Elec.	377665	USAECOM	70					100%		3.7	-	3.7
	Hybrid	U6	Cin. Elec..	377666	USAECOM	70					100%		7.7879	-	7.7879
		U8	Cin. Elec.	377661	USAECOM	70					100%		3.4776	-	3.4776
	Connector	P1	Amp	2-85978-2 30p	RADC II/191	70					100%		.0096	.5	.0048

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive Audio Airborne

PAGE 2 OF 2

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE 2.81972 X10^{-5}

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C9		F105R-10	217A/7.6-81	70	volts	20	0	5	10%	.25	.0021	-	.00021
	Resistor	R9		RCR05GXXXJS	199A/301.2	70	mW	125	0	10	10%	< .1	.0002	10	.0002
		R10		RCR05G	199A/301.2	70	mW	125	0	10	10%	< .1	.0002	10	.0002
	Hybrid	U7		376216	USAECOM	70					10%		9.0956	-	.90956
		U10		377667	USAECOM	70					10%		4.6837	-	.46837

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Transmit Audio Airborne

PAGE 1 OF 1

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE .137854 X10^{-5}

AT _____ DEGREES CENTIGRADE

.12 5 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G562JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R11		RCR07G750JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R12		RCR07G750JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R13		RCR07G473JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R14		RCR07G473JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
	Capacitor	C45		DM5C050DP	217A/7.6-21	70	volts	300	0	15	10%	<.1	.0003	15	.00045
		C46		DM5C390GP	217A/7.6-21	70	volts	300	0	15	10%	<.1	.0003	15	.00045
		C47		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
		C48		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
		C49		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
		C50		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
	Inductor	L25	Cin. Elec.		217A/7.2-9	70					10%		.2	8.6	.172
		L26	Cin. Elec.		217A/7.2-9	70					10%		.2	8.6	.172
		L27	Delevan	1025-32	217A/7.2-9	70					10%		.2	8.6	.172
		L28	Delevan	1025-32	217A/7.2-9	70					10%		.2	8.6	.172
	Transformer	T4	Cin. Elec.		217A/7.2-9	70					10%		.2	10	.2
	Diode Si	CR7	Hew. Pac.	HP5082-2800	217A/7.4-11	.257	mW	250	0	<1	10%	<.1	.227	3.5	.0795
		CR8	Hew. Pac.		217A/7.4-11	.257	mW	250	0	<1	10%	<.1	.227	3.5	.0795
	Connector	P1		51-728-000-2G	RADC II/191	70					10%		.036	.5	.0018
		P2		51-728-000-2G	RADC II/191	70					10%		.036	.5	.0018

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Meter Airborne

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .10535 X10^{-5}

AT ___ DEGREES CENTIGRADE

712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_A	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	π Factor	Tot. F. R.
	Connector	P3	MCDD1-954L5-1.0 9p	RADC II/191		70					10%		.00412	.5	.000206

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Meter Airborne

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0000206 $\times 10^{-5}$

AT _____ DEGREES CENTIGRADE

42 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C15		ATC100B4R3BRW	217A/7.6-59	70	volts	300	0	< 1	3%	< .1	.026	18	.01404
		C16		DM5C130DP	217A/7.6-21	70	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C17		DM5C330DP	217A/7.6-21	70	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C18		ATC10089RiBRW	217A/7.6-59	70	volts	300	0	< 1	3%	< .1	.026	18	.01404
		C19		DM5C430DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C20		DM5C101GP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C21		DM5C910GP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C22		DM5C910GP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C23		DM5C330DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C8		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
		C11		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L5	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L6	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L7	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L8	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L9	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L10	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
	Relay	K1		GB-831C-5F	217A/7.10-5	70					3%		.101	50	.1515
		K2		GB-831C-5F	217A/7.10-5	70					3%		.101	50	.1515
		C14		CKR05BX103KR	198B/1001.2	70	volts	100	24	24	100%	.24	.0005	5	.0025

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Airborne

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0644275 X10^{-5}

AT _____ DEGREES CENTIGRADE

-112 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C42		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L11	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L12	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
	Diode Si	CR1		JAN1N4148	217A/9.4-11	30	mA	75	0	< 5	3%	< .1	.255	3.5	.0268
		CR4		JAN1N4148	217A/9.4-11	30	mA	75	0	< 5	3%	< .1	.255	3.5	.0268
	Capacitor	C16'		DM5C120DP	217A/7.6-21	70	volts	300	0	1	3%	.1	.0003	15	.000135

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Airborne

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .01570100 X10⁻⁵

AT ____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C24		ATC100B3R0BRW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C25		DM5C180DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C26		DM5C240DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C27		DM5C130DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C28		DM5C300DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C29		DM5C360DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C30		DM5C330DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C31		DM5C330DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C32		DM5C130DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C9		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
		C12		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L13	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L14	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L15	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L16	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L17	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L18	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
	Relay	K3	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
		K4	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
	Capacitor	C43		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Airborne

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0627045 $X10^{-5}$

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode Si	CR2		JAN1N4148	217A/7.4-11	.30	mA	75	0	< 5	3%	< .1	.255	3.5	.0268
		CR5		JAN1N4148	217A/7.4-11	.30	mA	75	0	< 5	3%	< .1	.255	3.5	.0268
	Capacitor	C31		DM5C300DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C32		DM5C100DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Airborne

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .005387 X10^{-5}

AT _____ DEGREES CENTIGRADE

712 .RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P
	Capacitor	C33		ATC100B2R0BRW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C34		DM5C130DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C35		ATC100B9R1BRW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C36		ATC100B9R1BRW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C37		DM5C100DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C38		DM5C510DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C39		DM5C470DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C40		DM5C470DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C41		ATC100B9R1BRW	217A/7.6-59	70	volts	300	0	30	3%	.1	.026	18	.01404
		C10		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
		C13		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L19	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L20	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L21	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L22	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L23	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L24	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
	Relay	K5	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
		K6	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
	Capacitor	C44		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Airborne

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0672085 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ITEM # - R.M.	PART NOMENCLATURE	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ts	PARAMETER	RATE	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C53		DM5C560DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C54		DM5C510DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
	Inductor	L34	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L35	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L36	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L37	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L38	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
	Diode Si	CR3		JAN1N4148	217A/7.4-11	.30	mA	75	0	5	3%	<.1	.255	3.5	.0268
		CR6		JAN1N4148	217A/7.4-11	.30	mA	75	0	5	3%	<.1	.255	3.5	.0268
	Capacitor	C35'		ATC100B8R0BRW	217A/7.6-59	70	volts	300	0	1	3%	.1	.026	18	.01404
		C37'		DM5C130DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C41'		DM5C100DP	217A/7.6-25	70	volts	300	0	30	3%	.1	.0003	15	.000135

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Airborne

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .032618 X10^{-5}

AT _____ DEGREES CENTIGRADE

.12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR05BX103KR	198B/1001.2	70	volts	100	0	10	10%	.1	.0005	5	.00025
		C2		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
		C3		CKR06BX105KR	198B/1001.2	70	volts	50	0	12	10%	.24	.0005	5	.00025
		C4		CKR06BX105KR	198B/1001.2	70	volts	50	0	24	10%	.48	.0015	5	.00075
		C5		DM5C101JP	217A/7.6-21	70	volts	300	0	10	10%	< 1	.0003	15	.00045
		C6		CKR06BX334KR	198B/1001.2	70	volts	50	0	10	10%	.2	.0005	5	.00025
		C7		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
		C51		DM5C101GP	217A/7.6-21	70	volts	300	0	< 1	10%	< .1	.0003	15	.00045
		C52		DM5C181GP	217A/7.6-21	70	volts	300	0	< 1	10%	< .1	.0003	15	.00045
		C53		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
		C54		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	100%	.24	.0005	5	.0025
		C55		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
	Resistor	R1		RCR07G104JS	199A/301.2	70	mW	250	0	1	10%	< .1	.0002	10	.0002
		R2		RCR07G300JS	199A/301.2	70	mW	250	0	12	10%	.1	.0002	10	.0002
		R3		.2 ohm ½W	217A/7.5-25	70	mW	500	0	130	10%	.26	.21	.3	.0063
		R4		RCR07G752JS	199A/301.2	70	mW	250	0	3	10%	< .1	.0002	10	.0002
		R5		RCR07G252JS	199A/301.2	70	mW	250	0	< 1	10%	< .1	.0002	10	.0002
	Inductor	L1	Ferroxcube	VK200-20/4B	217A/7.7-9	70					10%		.2	8.6	.172
		L2	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L3	Ferroxcube	VK200-20/4B	217A/7.7-9	70					10%		.2	8.6	.172

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Airborne

PAGE 1 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE .052945 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Inductor	L4	Ferroxcube	VK200-20/4B	217A/7.7-9	70					10%		.2	8.6	.172
		L29	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L30	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L31	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L32	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
	Transformer	T1	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		T2	Cin. Elec.		217A/7.7-9	70					10%		.2	10	.2
		T3	Cin. Elec.		217A/7.7-9	70					10%		.2	10	.2
	Diode Si	CR1		1N4148	217A/7.4-11	.457	mW	100	20	20	10%	.2	.371	3.5	.1295
		CR5		1N4148	217A/7.4-11	.457	mW	100	20	20	10%	.2	.371	3.5	.1295
	Hybrid	A1	Cin. Elec.	377686	USAECOM	70					10%		.5013	-	.05013
		A2	Cin. Elec.	377687	USAECOM	70					10%		2.4602	-	.24602
	Connector	P1	Microdot	141-1005-0001	RADC II/191	70					10%		.036	.5	.0018
		P2	Amp	85930-4 20 pin	RADC II/191	70					10%		.00688	.5	.000344
		P3	Microdot	141-1005-0001	RADC II/191	70					10%		.036	.5	.0018
		P4		MCDD1-9P465-L0 9 pins	RADC II/191	70					100%		.00412	.5	.00206
	Resistor	R6		RCR07 JS	199A/301.2	70	mW	250	0	10	10%	< .1	.0002	10	.0002
		R7		RCR07 JS	199A/301.2	70	mW	250	0	10	10%	< .1	.0002	10	.0002
		R8		RCR07G122JS	199A/301.2	70	mW	250	0	10	10%	< .1	.0002	10	.0002
		R9		RCR07G472JS	199A/301.2	70	mW	250	0	10	10%	< .1	.0002	10	.0002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Airborne

PAGE 2 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE .2021954 X10-5

AT _____ DEGREES CENTIGRADE

12 . .ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_B	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G103JS	199A/301.2	70	mW	250	0	4	10%	<.1	.0002	10	.0002
		R11		RCR07G513JS	199A/301.2	70	mW	250	0	1	10%	<.1	.0002	10	.0002
		R12		RCR07G513JS	199A/301.2	70	mW	250	0	2	10%	<.1	.0002	10	.0002
	Inductor	L33	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L34	Delevan	1025-32	217A/7.7-9	70					10%		.2	8.6	.172
		L35		1025-32	217A/7.7-9	70					10%		.2	8.6	.172
		L37		1025-32	217A/7.7-9	70					10%		.2	8.6	.172
	SINEN Transistor	Q1		JAN2N2222A	217A/7.4-13	.257	mW	500	0	.1	10%	<.1	.227	8	.168
	Hybrid	A3	Cin. Elec.	377688	217B	70					10%		.5324	"	.05324
	Connector	P5	Microdot	141-1005-0001	RADC II/191	70					10%		.036	.5	.0018
		P6	Microdot	141-1005-0001	RADC II/191	70					10%		.036	.5	.0018
		P7	Selectro	51-751-0000-2	RADC II/191	70					10%		.036	.5	.0018
		P8	Selectro	51-751-0000-2	RADC II/191	70					10%		.036	.5	.0018
	Resistor	R13		RCR07JS	199A/301.2	70	mW	250	0	< 1	10%	<.1	.0002	10	.0002
		R14		RCR07JS	199A/301.2	70	mW	250	0	10	10%	<.1	.0002	10	.0002
		R15		RCR07JS	199A/301.2	70	mW	250	0	10	.10%	<.1	.0002	10	.0002
	Relay	K7		GB-831C-SE	217A/7.10-5	70					100%		.301	50	15.05
		K8		GB-831C-SE	217A/7.10-5	70					100%		.018	50	.9
		K9		GB-831C-SE	217A/7.10-5	70					10%		.301	50	1.505

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Airborne

PAGE 3 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE 1.837264 X10^{-5}

AT _____ DEGREES CENTIGRADE

.12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C2		Y203A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C3		B155A-05	217A/7.6-81	70	volts	15	10	10	100%	.75	.034	-	.034
		C4		B155A-05	217A/7.6-81	70	volts	15	10	10	100%	.75	.034	-	.034
		C6		Y154A-05	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	Resistor	R1		RCR05 JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05 JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L1	Lenox Fugle	NR-22	217A/7.7-9	70					100%		.2	8.6	1.72
		L6	Lenox Fugle	NR-22	217A/7.7-9	70					100%		.2	8.6	1.72
		L7	Lenox Fugle	NR-3.9	217A/7.7-9	70					100%		.2	8.6	1.72
		L8	Lenox Fugle	NR-12	217A/7.7-9	70					100%		.2	8.6	1.72
		L9	Lenox Fugle	NR-22	217A/7.7-9	70					100%		.2	8.6	1.72
		L10	Lenox Fugle	NR-10	217A/7.7-9	70					10%		.2	8.6	.172
		L11	Lenox Fugle	NR-3.3	217A/7.7-9	70					10%		.2	8.6	.172
	Transformer	T1	Cin. Elec.	377354	217A/7.7-9	70					100%		.2	10	2
		T2	Cin. Elec.	377355	217A/7.7-9	70					100%		.2	10	2
		T3	Cin. Elec.	377353	217A/7.7-9	70					100%		.2	10	2
		T4	Cin. Elec.	377355	217A/7.7-9	70					100%		.2	10	2
		T5	Cin. Elec.	377352	217A/7.7-9	70					100%		.2	10	2
		T6	Cin. Elec.	377355	217A/7.7-9	70					100%		.2	10	2

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Airborne

PAGE 1 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 2.10376 X10^{-5}

AT _____ DEGREES CENTIGRADE

-112 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Transformer	T7	Cin. Elec.	377356	217A/7.7-9	70					10%		.2	10	.2
	Hybrid	HY2	Cin. Elec.	377677	USAECOM	70					100%		.9884	-	.9884
		HY4	Cin. Elec.	377675	USAECOM	70					33%		.4061	-	.1340
		HY5	Cin. Elec.	377675	USAECOM	70					33%		.4061	-	.1340
		HY6	Cin. Elec.	377675	USAECOM	70					33%		.4061	-	.1340
		HY7	Cin. Elec.	377676	USAECOM	70					100%		.5216	-	.5216
	Capacitor	C15		Y474A-20	217A/7.6-81	70	volts	10	5	5	100%	.5	.0072	-	.0072
		C16		CKR05BX102KR	198B/1001.2	70	volts	200	5	5	100%	< .1	.0005	5	.0025
		C17		CKR05BX102KR	198B/1001.2	70	volts	200	5	5	100%	< .1	.0005	5	.0025
		C18		Y474A-20	217A/7.6-81	70	volts	10	5	5	33%	.5	.0072	-	.0024
		C19		Y474A-20	217A/7.6-81	70	volts	10	5	5	33%	.5	.0072	-	.0024
		C20		Y474A-20	217A/7.6-81	70	volts	10	5	5	33%	.5	.0072	-	.0024
	Resistor	R3		RCR05 JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R7		RCR05102JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R8		RCR05102JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R9		RCR05103JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R10		RCR05103JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R11		RCR05103JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R12		RCR05102JS	199A/301.2	70	mW	125	4	4	100%	< .1	.0002	10	.002
		R13		RCR05102JS	199A/301.2	70	mW	125	4	4	100%	< .1	.0002	10	.002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Airborne

PAGE 2 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 1.11474 X10^{-5}

AT _____ DEGREES CENTIGRADE

-113-

12 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Resistor	R16		RCR05104JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
	Int. Circuit	IC1	Plessey	376152	RADC II/413	70					100%		1.207	-	1.207
	Hybrid	HY8		377679	RADC II/413	70					100%		.4212	-	.4212
		R18		RCR05 JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R19		RCR05 JS	199A/301.2	70	mW	125	12	12	100%	.1	.0002	10	.002
	Connector	P1	Amp	85930-4 20p	RADC II/191	70					100%		.00688	.5	.00344
		P2	Microdot	141-1005-0001	RADC II/191	70					100%		.036	.5	.018
		P3	Microdot		RADC II/191	70					100%		.036	.5	.018
	Transformer	T8		377357	217A/7.7-9	70					10%		.2	10	.2
	Diode, Var.	CR1		DKV6523B	Cin. Elec.	70					100%		.72	-	.72
		CR2		DKV6523B	Cin. Elec.	70					100%		.72	-	.72
		CR3		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR4		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR5		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR6		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR7		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR8		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR9		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR10		DKV6524B	Cin. Elec.	70					100%		.72	-	.72
		CR11		DKV6524B	Cin. Elec.	70					100%		.72	-	.72

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Airborne

PAGE 3 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .079364 X10⁻⁵

AT _____ DEGREES CENTIGRADE

4712 .RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Diode, Var.	CR12		DKV6524B	Cin, Elec.	70					100%		.72	-	.72

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Airborne

PAGE 4 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .072 X10^{-5}

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C7	Comp. Inc.	Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C8		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C9		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C10		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	Resistor	R4		RCR05G	199A/301.2	70	mW	125	2	2	100%	< .1	.0002	10	.002
		R5		RCR05G101JS	199A/301.2	70	mW	125	20	10	100%	< .1	.0002	10	.002
		R6		RCR05G	199A/301.2	70	mW	125	1	1	100%	< .1	.0002	10	.002
		R17		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L2	Lenox Fugle	NR22	217A/7.7-9	70					100%		.2	8.6	1.72
		L3	Lenox Fugle	NR22	217A/7.7-9	70					100%		.2	8.6	1.72
	Int. Circuit	IC1	CTS Knights	376153 TCXO	RADC II/413	70					100%		.9656	-	.9656
		IC2		Ref. 4/4 N	USAECOM	70					100%		3.7	-	3.7
						70									
	Resistor	R20		RCR05 JS	199A/301.2	70	[illegible]	125	1	1	100%	< .1	.0002	10	.002
	Capacitor	C11		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0065	-	.0072
		C12		G106A-20	217A/7.6-81	70	volts	15	5.6	5.6	100%	.37	.0035	-	.0035
		C13		S685A-20	217A/7.6-81	70	volts	35	20	20	100%	.57	.0127	-	.0127
		C14		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C5		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C22		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Airborne

PAGE 1 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .82066 X10⁻⁵

AT _____ DEGREES CENTIGRADE

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
	Capacitor	C23		Y103A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	Resistor	R14		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R15		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
	Inductor	L4	Lenox Fugle	NR22	217A/7.7-9	70					100%		.2	8.6	1.72
		L5	Lenox Fugle	NR22	217A/7.7-9	70					100%		.2	8.6	1.72
	Hybrid	HY1	Cin. Elec.	377678	USAECOM	70					100%		3.7573	-	3.7573
	Capacitor	C24	Comp. Inc.	S156R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C25	Comp. Inc.	S156R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C26	Comp. Inc.	L336R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C27	Comp. Inc.	L336R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C28	Comp. Inc.	L336R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C29	Comp. Inc.	L336R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C30	Comp. Inc.	S226R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C31	Comp. Inc.	S226R-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		L6	Cin. Elec.	55017-A5	217A/7.7-9	70					100%		.2	8.6	1.72
		L7	Cin. Elec.	CF101-Q1	217A/7.7-9	70					100%		.2	8.6	1.72

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Airborne

PAGE 2 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 1.07061 X10⁻⁵

AT _____ DEGREES CENTIGRADE

42 ESS ANALYSIS

ITEM # - S.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.R
	Capacitor	C1		U103R-10	217A/7.6-81	70	volts	20	5	5	100%	.25	.0021	-	.0021
		C2		U104R-10	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	Diode Si	CR1		JAN1N4148	217A/7.4-11	30	mA	75	< 1	< 1	100%	< .1	.255	3.5	.8925
	Connector	P1	Microdot	MCDD1-25P6A1	RADC II/191	70					100%		.00831	.5	.00415
	Hybrid	U1		377691	USAECOM	70					100%		15.3465	-	15.3465
	Pin Light	D51		376048	217A/7.12-3	70					100%		7	-	7
		D52		376048	217A/7.12-3	70					100%		7	-	7
		D53		376048	217A/7.12-3	70					100%		7	-	7
		D54		376048	217A/7.12-3	70					100%		7	-	7
		D55		376048	217A/7.12-3	70					100%		7	-	7

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Frequency Control Airborne

PAGE 1 OF 1

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE 5.125245 X10^{-5}

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ts	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor, Var	R1	Allen Bradley	GS1T048F103AA	217A/7.5-21	70	wette	0.5	.1	.1	100%	.2	.1	50	5.0
	Switch	S1		376027-1	RADC II/217	70					100%		.008	-	.008
		S2		376027-2	RADC II/217	70					100%		.0768	-	.0768
		S3		376029	RADC II/217	70					.5%		.168	-	.00084
		S4	Grayhill	30-25LB	RADC II/217	70					100%		.024	-	.024
	Connector		Microdot	142-1002-0001	RADC II-191	70					100%		.036	.5	.018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					100%		.036	.5	.018
			Microdot	142-1002-0001	RADC II-191	70					90%		.036	.5	.0138
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					90%		.036	.5	.0138
			Microdot	142-1002-0001	RADC II-191	70					90%		.036	.5	.0138
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
				377103 33p	RADC II-191	70					100%		.0109	.5	.00545
			I.T.T. Can.	ES-C-211489 5p	RADC II-191	70					100%		.00633	.5	.00316
				377141 6p	RADC II-191	70					100%		.00344	.5	.00172

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Airborne

PAGE 1 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .520797 X10^{-5}

AT _____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. P. R.
	Connecter			UG-912/U	RADC II-191	70					100%		.036	.5	.018
	Switch	S5		376029	RADC II/217	70					.5%		.168	.5	.00084
		S6		51MX23029-3AE	RADC II/217	70					100%		.0784	.5	.0784
	Fuse		Little Fuse	277-004	217A/7.12-3	70					100%		.1	-	.1
	Diode			1N914	217A/7.4-11	.30	mA	75	0	2	100%	< .1	.255	3.5	.8925
	Resistor			RCR05G103JS	199A/301.2	70	mA	125		10	100%	< .1	.0002	10	.002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Airborne

PAGE 2 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .109174 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - S.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp° or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C6	Comp Inc.	L336R20	217A/7.6-81	70	volts	6	5	5	100%	.83	.043	-	.043
		C7	Comp Inc.	F305R-20	217A/7.6-81	70	volts	6	5	5	100%	.83	.043	-	.043
		C8	Comp Inc.	F305R-20	217A/7.6-81	70	volts	6	5	5	100%	.83	.043	-	.043
		C9	Comp Inc.	F305R-20	217A/7.6-81	70	volts	6	5	5	100%	.83	.043	-	.043
		C10	Comp Inc.	M106R-20	217A/7.6-81	70	volts	6	0	4	100%	.67	.025	-	.025
	Inductor	L3	Cin. Elec.	377556	217A/7.7-9	70					100%		.2	10	2
	Transformer	T2	Cin. Elec.	377553-1	217A/7.7-9	70					100%		.2	10	2
		T3	Cin. Elec.	377553-2	217A/7.7-9	70					100%		.2	10	2
	MSI	Z2	Cin. Elec.	377657	RADC II/413	70					100%		2.6554	-	2.6554
	Diode Si	CR3		1N5802	217A/7.4-11	.348	amps	2.5	.12	.12	100%	.048	.515	12	6.18
	Diode Si	CR4		1N5802	217A/7.4-11	.4	amps	2.5	.25	.25	100%	.1	.620	12	7.44
	Resistor	R3		RW81U2R00F	217A/7.5-15	70	watts	1	.044	.044	100%	< .1	.009	50	.45
		R4		RW81U1R50F	217A/7.5-15	70	watts	1	.1	.1	100%	.1	.009	50	.45
	MSI	Z3		377656	RADC II/413	70					100%		1.6898	-	1.6998

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 4 & 5 Volt Regulators Airborne

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE 2.50722 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C3		CL67BJ470MPC	217A/7.6-47	70	volts	75	24	24	100%	.33	.025	5	.125
		C4			217A/7.6-81	70	volts	15	10	10	100%	.67	.022	-	.022
		C5			217A/7.6-81	70	volts	15	10	10	100%	.67	.022	-	.022
	Inductor	L2	Cin. Elec.	377555-2	217A/7.7-9	70					100%		.2	10	2
	Transformer	T1	Cin. Elec.	377552	217A/7.7-9	70					100%		.2	10	2
	MSI	Z1	Cin. Elec.	377658	RADC II/413	70					100%		1.6898	-	1.6998
	Diode Si	CR2		JAN1N5802	217A/7.4-11	.37	amps	2.5	.175	.175	100%	.07	.555	12	6.66
	Resistor	R1		RW81U1R00F	217A/7.5-15	70	watts	.1	< .1	< .1	100%	< .1	.009	50	.45
		R2		RW81U1R00F	217A/7.5-15	70	watts	1	.022	.022	100%	< .1	.009	50	.45
	Diode, Si	CR5		JAN1N3611	217A/7.4-11	.375	amps	1	0	0	100%	< .1	.307	3.5	1.073

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 10 Volt Regulator Airborne

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE 1.45018 X10-5

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Tb	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR06BX104KR	198B/1001.2	70	volts	100	24	24	100%	.24	.0005	5	.0025
		C2		M39003/01-2379	217A/7.6-81	70	volts	50	24	24	100%	.48	.0065	-	.0065
		C11		L22612-20	217A/7.6-81	70	volts	10	5	5	100%	.5	.0072	-	.0072
		C12		L22612-20	217A/7.6-81	70	volts	10	5	5	100%	.5	.0072	-	.0072
		C13		F105R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C14		F105R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C15		L106R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C16		L106R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C17		M155R-20	217A/7.6-81	70	volts	35	20	0	100%	.57	.0127	-	.0127
		C18		CKR05BX104KR	198B/1001.2	70	volts	50	42	42	100%	.84	.0090	5	.045
		C19		CKR05BX104KR	198B/1001.2	70	volts	50	42	42	100%	.84	.0090	5	.045
	Inductor	L4	Cin. Elec.	377555-3	217A/7.7-9	70					100%		.2	10	2
		L5	Cin. Elec.	377555-4	217A/7.7-9	70					100%		.2	10	2
		L6	Cin. Elec.	377555-4	217A/7.7-9	70					100%		.2	10	2
		L7	Cin. Elec.	377555-4	217A/7.7-9	70					100%		.2	10	2
		L8	Cin. Elec.	377555-5	217A/7.7-9	70					100%		.2	10	2
		L1	Cin. Elec.	377555-1	217A/7.7-9	70					100%		.2	10	2
	Transformer	T4	Cin. Elec.	377554	217A/7.7-9	70					100%		.2	10	2
	Diode Si	CR6		5R0	217A/7.4-11	.338	mW	500	34	34	100%	.038	.282	3.5	.987
		CR7		5R0	217A/7.4-11	.338	mW	500	34	34	100%	.038	.282	3.5	.987

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Airborne

PAGE 1 OF 2

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE 1.62361 X10-5

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode Si	CR8		JAN1N4148	217A/7.4-11	.367	mA	75	5	5	100%	.067	.302	3.5	1.057
		CR9		JAN1N4148	217A/7.4-11	.367	mA	75	5	5	100%	.067	.302	3.5	1.057
		CR12		JAN1N4148	217A/7.4-11	.34	mA	75	3	3	100%	.04	.282	3.5	.987
		CR13		JAN1N4148	217A/7.4-11	.34	mA	75	3	3	100%	.04	.282	3.5	.987
		CR14		JAN1N3611	217A/7.4-11	.375	amps	1.0	.0003	.0003	100%	< .1	.307	3.5	1.073
		CR15		JAN1N3611	217A/7.4-11	.375	amps	1.0	.0003	.0003	100%	< .1	.307	3.5	1.073
	MSI	Z4		377659	RADC II/413	70					100%		1.9312	-	1.9312
	Connector	P1		20p	RADC II/191	70					100%		.00688	.5	.00344
	Diode	CR10		JAN1N4148	217A/7.4-11	.367	mA	75	5	5	100%	.067	.302	3.5	1.057
		CR11		JAN1N4148	217A/7.7-11	.367	mA	75	5	5	100%	.067	.302	3.5	1.057
		CR16		JAN1N3611	217A/7.7-11	.445	amps	1.0	.07	.07	100%	.07	.361	3.5	1.225
	Relay	K1	Teledyne	432-3.3KR	217A/7.10-5	70							.301	50	15.05

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Airborne

PAGE 2 OF 2

DRAWING NO. 377550, Power Supply

TOTAL FAILURE RATE 2.655764 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Switch	S1	Greyhill	30-12BB	RADCII/217	70					100%		.32		.32
		S2	Greyhill	5080-36-01-2	RADCII/217	70					100%		.736		.736
	Resistor	R1		RV6NAYSL-203A	217A/7.5-21	70	max	500	.10	.10	100%	≤.1	1	50	5
		R2		RV6NAYSL-103A	217A/7.5-21	70	max	500	.10	.10	100%	≤.1	1	50	5
	Connector	P1	Bendix	22P 21-269-218-32S	RADCII/191	70					100%		.0074	.5	.0037
		P2	Dage	7180-1	RADCII/191	70					100%		.036	.5	.018
		P3	Dage	7180-1	RADCII/191	70					100%		.036	.5	.018
		P4	Dage	7180-1	RADCII/191	70					100%		.036	.5	.018
		P5	Costal Dyn	108	RADCII/191	70					100%		.0016	.5	.0008
		P6	Sealectro	51-724-0000	RADCII/191	70					100%		.036	.5	.018
		P7	Sealectro	51-724-0000	RADCII/191	70					100%		.036	.5	.018
		P8	Sealectro	51-724-0000	RADCII/191	70					100%		.036	.5	.018
		P9	Sealectro	51-724-0000	RADCII/191	70					100%		.036	.5	.018
		P10	Sealectro	51-724-0000	RADCII/191	70					100%		.036	.5	.018
		P11	Sealectro	51-724-0000	RADCII/191	70					100%		.036	.5	.018
		P12		37710433P	RADCII/191	70					100%		.0109	.5	.0054
		P13		3-21-000014P	RADCII/191	70					100%		.0051	.5	.00255
		P14		3-14-00003-4P	RADCII/191	70					100%		.011	.5	.0055

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis

PAGE 1 OF 1

DRAWING NO. Airborne Applique 170600

TOTAL FAILURE RATE 1.123595 X10⁻⁵

AT _____ DEGREES CENTIGRADE

EES ANALYSIS

ITEM # - E.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. °C Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.R
	Capacitor														
		C402		CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	< .1	.0005		.0025
		C403		CKR05BX103KR	198B/1001.2	70	Volts	100	4	4	100%	< .1	.0005		.0025
		C404		CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	< .1	.0005		.0025
		C405		CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	< .1	.0005		.0025
		C406		CKR05BX104KR	198B/1001.2	70	Volts	50	2	2	100%	< .1	.0005		.0025
		C407		CKR05BX104KR	198B/1001.2	70	Volts	50	2	2	100%	< .1	.0005		.0025
		C408	Comp.. Inc.	L156R-20	217A/7.6-81	70	Volts	15	0	2	10%	.13	.0013		.00013
		C409		CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	< .1	.0005	5	.00025
		C410		CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	< .1	.0005	5	.00025
		C411		CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	< .1	.0005	5	.00025
		C412		CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	.1	.0005	5	.00025
		C413	JFD	DV510H	217A/7.6-33	70	Volts	100%	0	2	10%	< .1	01		001
		C414		1501-36-101	217A/7.6-25	70	Volts	100%	0	2	10%	< .1	002	5	001
		C415		CKR05BX102KR	198B/1001.2	70	Volts	200	0	.2	10%	< .1	.0005	5	.00025
		C416		CKR05BX102KR	198B/1001.2	70	Volts	200	0	.2	10%	< .1	.0005	5	.00025
		C417		CKR05BX104KR	198B/1001.2	70	Volts	50	0	2	10%	.1	.0005	5	.00025
		C418		CKR05BX104KR	198B/1001.2	70	Volts	50	0	2	10%	< .1	.0005	5	.00025
		C419		CKR05BX103KR	198B/1001.2	70	Volts	100	0	10	100%	.1	.0005	5	.0025
	Resistor	R401		RCR05G102JS	199A/301.2	70	mw	125	0	9	100%	< .1	00024	10	.0024

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 1 OF 6

DRAWING NO. Airborne Applique, 3-6600

TOTAL FAILURE RATE .002403 X10-5

AT _____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	π Factor	Tot. F. R
		R402		RCR05G101JS	199A/301.2	70	mw	125	10	10	100%	.1	.00024	10	.0024
		R403		RCR05G470JS	199A/301.2	70	mw	125	<1	<1	100%	.1	.00024	10	.0024
		R404		RCR05G101JS	199A/301.2	70	mw	125	10	10	100%	.1	.00024	10	.0024
		R405		RCR05G392JS	199A/301.2	70	mw	125	4	4	100%	.1	.00024	10	.00024
		R407		RCR05 JS	199A/301.2	70	mw	125	5	5	100%	.1	.00024	10	.00024
		R408		RCR05G104JS	199A/301.2	70	mw	125	10	10	100%	.1	.00024	10	.0024
		R409		RCR05G102JS	199A/301.2	70	mw	125	25	25	100%	.2	.0004	10	.004
		R410		RCR05G222JS	199A/301.2	70	mw	125	0	40	90%	.32	.0006	10	.0054
		R411		RCR05G102JS	199A/301.2	70	mw	125	25	25	100%	.2	.0004	10	.004
		R412		RCR05G432JS	199A/301.2	70	mw	125	0	5	10%	.1	.00024	10	.00024
		R413		RCR05 JS	199A/301.2	70	mw	125	0	10	10%	.1	.00024	10	.00024
		R414		RCR05G513JS	199A/301.2	70	mw	125	0	1	10%	.1	.00024	10	.00024
		R415		RCR05G204JS	199A/301.2	70	mw	125	0	1	10%	.1	.00024	10	.00024
		R416		RCR05G682JS	199A/301.2	70	mw	125	0	1	10%	.1	.00024	10	.00024
		R417		RCR05G103JS	199A/301.2	70	mw	125	0	1	10%	.1	.00024	10	.00024
		R418		RCR05G273JS	199A/301.2	70	mw	125	0	4	10%	.1	.00024	10	.00024
		R419		RCR05G273JS	199A/301.2	70	mw	125	1	1	100%	.1	.00024	10	.0024
		R420		RCR05G392JS	199A/301.2	70	mw	125	1	1	100%	.1	.00024	10	.0024
		R421		RCR05G392JS	199A/301.2	70	mw	125	1	1	100%	.1	.00024	10	.0024

TEMP. _____ DATE 25 June1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 2 OF 6

DRAWING NO. Airborne Applique. 776600

TOTAL FAILURE RATE .003236 X10⁻⁵

AT _____ DEGREES CENTIGRADE

S SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F. R.
		R422		RCR05G512JS	199A/301.2	70	mw	125	0	5	10%	< .1	.00024	10	.00024
		R424		RCR05G [illegible] JS	199A/301.2	70	mw	125	5	5	100%	< .1	.00024	10	.0024
		R425		RCR05G204JS	199A/301.2	70	mw	125	< 1	< 1	100%	< .1	.00024	10	.0024
		R426		RCR05G473JS	199A/301.2	70	mw	125	< 1	< 1	100%	< .1	.00024	10	.0024
		R427		RCR05G124JS	199A/301.2	70	mw	125	< 1	< 1	100%	< .1	.00024	10	.0024
		R428		RCR05G274JS	199A/301.2	70	mw	125	< 1	< 1	100%	< .1	.00024	10	.0024
		R429		RCR05 JS	199A/301.2	70	mw	125	4	4	100%	< .1	.00024	10	.0024
		R430		RCR05G182JS	199A/301.2	70	mw	125	2	2	100%	< .1	.00024	10	.0024
		R431		RCR05G222JS	199A/301.2	70	mw	125	1	1	100%	< .1	.00024	10	.0024
		R432		RCR05G472JS	199A/301.2	70	mw	125	0	1	10%	< .1	.00024	10	.00024
		R433		RCR05G473JS	199A/301.2	70	mw	125	0	1	10%	< .1	.00024	10	.00024
		R434		RCR05G163JS	199A/301.2	70	mw	125	0	1	10%	< .1	.00024	10	.00024
		R435		RCR05G823JS	199A/301.2	70	mw	125	0	3	10%	< .1	.00024	10	.00024
		R436		RCR05G [illegible] JS	199A/301.2	70	mw	125	0	1	10%	< .1	.00024	10	.00024
		R437		RCR05G202JS	199A/301.2	70	mw	125	0	12	10%	.1	.00024	10	.00024
		R438		RCR05G202JS	199A/301.2	70	mw	125	0	12	10%	.1	.00024	10	.00024
		R439		RCR05G823JS	199A/301.2	70	mw	125	0	3	10%	< .1	.00024	10	.00024
		R440		RCR05G622JS	199A/301.2	70	mw	125	0	1	10%	< .1	.00024	10	.00024
		R441		RCR05G101JS	199A/301.2	70	mw	125	0	22	50%	.2	.0004	10	.002

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 3 OF 6

DRAWING NO. Airborne Applique. 7660[illegible]

TOTAL FAILURE RATE .00236 X10⁻⁵

AT _____ DEGREES CENTIGRADE

42 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
		R442		RCR05G331JS	199A/301.2	70	mw	125	12	12	100%	≤.1	.0002	10	.0024
		R443		RCR05G222JS	199A/301.2	70	mw	125	0	2	50%	≤.1	.0002	10	.0012
		R444		RCR05G184JS	199A/301.2	70	mw	125	5	5	100%	≤.1	.0002	10	.0024
		R445		RCR05G222JS	199A/301.2	70	mw	125	0	2	50%	≤.1	.0002	10	.0012
		R446		RCR05G331JS	199A/301.2	70	mw	125	12	12	100%	.1	.0002	10	.0024
		R447		RCR05G101JS	199A/301.2	70	mw	125	0	22	50%	.2	.0002	10	.0012
		R448		RCR05G332JS	199A/301.2	70	mw	125	0	5	50%	≤.1	.0002	10	.0012
		R449		RCR05G332JS	199A/301.2	70	mw	125	0	5	50%	≤.1	.0002	10	.0012
		R450		RCR05G272JS	199A/301.2	70	mw	125	2	2	100%	≤.1	.0002	10	.0024
		R451		RCR05G102JS	199A/301.2	70	mw	125	0	≤1	10%	≤.1	.0002	10	.0024
	Inductor	L401	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	.172
		L402	Lenox Fugle	NR10	217A/7.7-9	70					50%		.2	8.6	.86
		L403	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	.172
		L404	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	1.72
		L405	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	1.72
		L406	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	1.72
		L407	Delevan	1025-68	217A/7.7-9	70					10%		.2	8.6	.172
	Transformer	T401	CEC	376634	217A/7.7-9	70					10%		.2	10	.2
		T402	CEC	376633	217A/7.7-9	70					10%		.2	10	.2
	Diode Pin	CR40		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	.065

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 4 OF 6

DRAWING NO. Airborne Applique 376600

TOTAL FAILURE RATE .801684 X10^{-5}

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Tj	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
		CR402		HP5082-3186	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065
		CR403		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065
	Diode Pin	CR404	Unitrode	UM6601B	217A/7.4-11	.34	mw	250	10	10	100%	.04	.283	3.5	.99
		CR405		UM6601B	217A/7.4-11	.34	mw	250	10	10	100%	.04	.283	3.5	.99
		CR406		UM6601B	217A/7.4-11	.34	mw	250	10	10	100%	.04	.283	3.5	.99
		CR407		UM6601B	217A/7.4-11	.34	mw	250	10	10	100%	.04	.283	3.5	.99
	Diode	CR408		JAN1N4148	217A/7.4-11	.257	ma	75	0	.4	10%	<.01	.227	3.5	.0795
		CR409			217A/7.4-11	.257	ma	75	0	.01	10%	<.01	.227	3.5	.0795
		CR410			217A/7.4-11	.517	ma	75	0	20	10%	.26	.427	3.5	.1493
		CR411		1N5711	217A/7.4-11	.297	mw	250	0	10	10%	.04	.255	3.5	.0892
SINPN	Transistor	Q401		JAN2N2222A	217A/7.4-13	.257	mw	500	1.5	1.5	100%	<.01	.227	8	1.816
		Q402		JAN2N2222A	217A/7.4-13	.257	mw	500	12	12	100%	.024	.243	8	1.944
		Q403		JAN2N2222A	217A/7.4-13	.257	mw	500	1.5	1.5	100%	<.01	.227	8	1.816
		Q404		JAN2N2222A	217A/7.4-13	.257	mw	500	1.5	1.5	100%	<.01	.227	8	1.816
		Q405		JAN2N2222A	217A/7.4-13	.257	mw	500	3	3	100%	<.01	.227	8	1.816
		Q406		JAN2N2222A	217A/7.4-13	.257	mw	500	3	3	100%	<.01	.227	8	1.816
	Thermistor	RT401	Victory	302D20BJC	217A/7.12-3	70					10%		1.629		.1629
	Int. Cir.	Z401	Fairchild	U5F7747312	RADCII/416	70					100%		.3		.3
		Z402	Fairchild	U5F7747312	RADCII/416	70					100%		2.56		2.56
		Z403	Motorola	MC15906	RADCII/416	70					100%		2.56		2.56

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 5 OF 6

DRAWING NO. Airborne Applique 376600

TOTAL FAILURE RATE 2.30944 X10^{-5}

AT _____ DEGREES CENTIGRADE

42 ESR ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C or °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	Δ Factor	Tot. F. R.
		Z404	Fairchild	USF7747312	RADC II/416	70					100%		2.56		2.56
	CMOS	Z405	RCA	CD4047AK	USAECOM	70					100%		.169		.169

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 6 OF 6

DRAWING NO. Airborne Applique. 3"6600

TOTAL FAILURE RATE .2729 X10⁻⁵

AT _____ DEGREES CENTIGRADE

.12 RESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C201		CKR05BX102KR	198B/1001.2	70	V	200	0	10	10%	<.1	.0005	5	.0025
		C202		CKR05BX104KR	198B/1001.2	70	V	50	0	10	1%	.2	.0005	5	.00002
		C203		CKR05BX104KR	198B/1001.2	70	V	50	0	1	1%	<.1	.0005	5	.00002
		C204		DH10ED201J03	217A/7.6-21	70	V	500	0	1	1%	<.1	.0003	15	.00004
		C205		CKR05BX102KR	198B/1001.2	70	V	200	5	5	100%	<.1	.0005	5	.0025
		C206		CKR05BX102KR	198B/1001.2	70	V	200	1	1	100%	<.1	.0005	5	.0025
		C207		CKR05BX102KR	198B/1001.2	70	V	200	5	5	100%	<.1	.0005	5	.0025
		C208		CKR05BX102KR	198B/1001.2	70	V	200	1	1	100%	<.1	.0005	5	.0025
	Resistor	R201		RCR05G473JS	199A/301.2	70	mv	125	0	2	1%	<.1	.00024	10	.00002
		R202		RCR05G510JS	199A/301.2	70	mv	125	0	1	1%	<.1	.00024	10	.00002
		R203		RCR05G[illegible]JS	199A/301.2	70	mv	125	25	25	100%	.2	.0004	10	.004
		R204		RCR05G432JS	199A/301.2	70	mv	125	8	8	100%	<.1	.00024	10	.0024
		R205		RCR05G432JS	199A/301.2	70	mv	125	8	8	100%	<.1	.00024	10	.0024
		R206		RCR05G432JS	199A/301.2	70	mv	125	25	25	100%	.2	.0004	10	.004
		R207		RCR05G622JS	199A/301.2	70	mv	125	1	1	100%	<.1	.00024	10	.0024
		R208		RCR05G512JS	199A/301.2	70	mv	125	0	20	10%	.16	.00026	10	.00026
		R209		RCR05G102JS	199A/301.2	70	mv	125	0	1	2%	<.1	.00024	10	.00005
		R210		RCR05G304JS	199A/301.2	70	mv	125	<1	<1	100%	<.1	.00024	10	.0024
		R211		RCR05G432JS	199A/301.2	70	mv	125	0	5	2%	<.1	.00024	10	.00005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Special Functions

PAGE 1 OF 3

DRAWING NO. Airborne Applique. 3766-00

TOTAL FAILURE RATE .0025373 X10-5

AT _____ DEGREES CENTIGRADE

.12 REES ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Tot. F.
		R212		RCR05G304JS	199A/301.2	70	mw	125	≤ 1	≤ 1	100%	≤.1	.0002	10	.0024
		R213		RCR05G103JS	199A/301.2	70	mw	125	≤ 1	≤ 1	100%	≤.1	.0002	10	.0024
		R214		RCR05G154JS	199A/301.2	70	mw	125	12	12	100%	.1	.0002	10	.0024
		R219		RCR05G151JS	199A/301.2	70	mw	125	0	12	10%	.1	.0002	10	.00024
		R220		RCR05G203JS	199A/301.2	70	mw	125	0	12	10%	.1	.0002	10	.00024
		R221		RCR05G151JS	199A/301.2	70	mw	125	0	5	10%	≤.1	.0002	10	.00024
	Inductor	L201	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	1.72
		L202	Lenox Fugle	NR3.3	217A/7.7-9	70					10%		.2	8.6	.172
		L203	Lenox Fugle	NR3.3	217A/7.7-9	70					10%		.2	8.6	.172
	Transformer	T201	CEC	376636	217A/7.7-9	70					1%		.2	10	.02
		T203	CEC	376628	217A/7.7-9	70					10%		.2	10	.2
	Diode SI	CR201		JAN1N4148	217A/7.4-11	.257	ma	75	0	.5	1%	≤.01	.227	3.5	.00795
		CR202		JAN1N4148	217A/7.4-11	.257	ma	75	0	.5	1%	≤.01	.227	3.5	.00795
	Pin	CR203		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065
		CR204		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065
		CR205		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065
		CR206		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065
	SI	CR207		JAN1N4148	217A/7.4-11	.257	ma	75	0	≤ 1	2%	≤.01	.227	3.5	.0159
		CR208		JAN1N4148	217A/7.4-11	.257	ma	75	0	≤ 1	10%	≤.01	.227	3.5	.00795
		CR209		JAN1N4148	217A/7.4-11	.257	ma	75	≤ 1	≤ 1	100%	≤.01	.227	3.5	.795

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Special Functions

PAGE ___ OF ___

DRAWING NO. Airborne Applique [illegible]

TOTAL FAILURE RATE .745822 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Tn	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Si NPN Transistor	Q201		JAN2N2222A	217A/7.4-13	.257	mw	500	0	1.5	1%	≤.01	.227	8	.01816
		Q202		JAN2N2222A	217A/7.4-13	.261	mw	500	0	12	10%	.024	.243	8	.1944
		Q203		JAN2N2222A	217A/7.4-13	.281	mw	500	0	12	2%	.024	.243	8	.03888
	CMOS	Z201	RCA	CD4001AK	USAFCOM	70					100%		.169		.169
		Z203	RCA	[illegible]	USAFCOM	70					100%		.169		.169
	Relay	K202	[illegible]	[illegible]	[illegible]	[illegible]					10%		.151	50	.755
	Connector	P4	Sealectro	51-751-00002G	RADCII/191	70					100%		.036	.5	.018
		P5	Sealectro	51-751-00002G	RADCII/191	70					100%		.036	.5	.018
		P6	Sealectro	51-751-00002G	RADCII/191	70					100%		.036	.5	.018
		P7	Sealectro	51-751-00002G	RADCII/191	70					100%		.036	.5	.018
		P8	Sealectro	51-751-00002G	RADCII/191	70					100%		.036	.5	.018
		P9	Sealectro	51-751-00002G	RADCII/191	70					10%		.036	.5	.0018
	Diode Pin	CR210		HP5082-3188	217A/7.4-11	.37	mw	250	2	2	100%	.01	.304	3.5	1.065

TEMP. _____ DATE 25 June 1978

FUNCTIONAL BLOCK Special Functions

PAGE 3 OF 3

DRAWING NO. Airborne Applique. 3^6600

TOTAL FAILURE RATE .2 50124 X10^-5

AT _____ DEGREES CENTIGRADE

.12 RESC ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. Fa
	Capacitor	C102		1501-36-101	217A/7.6-25	70	V	300	0	.1	10%	.1	.001	5	.01
	Capacitor	C101	JFD	DV105H	217A/7.6-33	70	V	100	0	.1	10%	<.1	.01		.01
	Capacitor	C103	Centralab	C12C1ROD	217A/7.6-25	70	V	100	0	.1	10%	<.1	.002	5	.01
	Capacitor	C105	JFD	DV105H	217A/7.6-33	70	V	100	0	.1	10%	<.1	.01		.01
	Capacitor	C106		1501-36-101	217A/7.6-25	70	V	300	0	.1	10%	<.1	.002	5	.01
	Capacitor	C108	JFD	DV105H	217A/7.6-33	70	V	100	0	.1	10%	.1	.01		.01
	Capacitor	C106		[illegible]	198B/1001.2	70	V	200	0	.1	10%	<.1	.0005	5	.00025
	Capacitor	C107		1501-36-101	217A/7.6-25	70	V	100	0	.1	10%	<.1	.002	5	.01
	Capacitor	C109		CKR05BX102KR	198B/1001.2	70	V	200	0	.1	10%	<.1	.0005	5	.00025
	Capacitor	C110		CKR05BX104KR	198B/1001.2	70	V	50	0	.1	10%	<.1	.0005	5	.00025
	Resistor	R101		RCR05G131JS	199A/301.2	70	mw	125	0	52	100%	.417	.001	10	.01
	Resistor	R102		RCR05G430JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R103		RCR05G100JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R104		RCR05G100JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R105		RCR05G100JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R115		RCR05G430JS	199A/301.2	70	mw	125	0	1	100%	<.1	.0002	10	.0024
	Inductor	L101	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	1.72
	Inductor	L102	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	1.72
	Inductor	L103	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	1.72
	Inductor	L104	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	1.72

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Guard Receiver

PAGE 1 OF 2

DRAWING NO. Airborne Applique, 376600

TOTAL FAILURE RATE .697275 X10^{-5}

AT _____ DEGREES CENTIGRADE

42 ...ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor	L105	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	1.72
	Inductor	L106	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	1.72
	Transformer	T202	CEC		217A/7.7-9	70					100%		.2	10	2.0
	Transformer	T102	CEC		217A/7.7-9	70					100%		.2	10	2.0
	Transformer	T103	CEC		217A/7.7-9	70					10%		.2	10	2.0
	Transistor	Q101	Siliconix	U320	217A/7.4-13	.457	mw	300	0	60	10%	.2	.371	8	2.968
	Crystal Filter	FL101		376652	217A/7.4-13	70					100%		4.08		4.08
	Crystal Filter	FL102		376652	217A/7.4-13	70					100%		4.08		4.08
	Hybrid	Z101		377698	USAECOM	70					100%		2.7864		2.7864
	Hybrid	Z102		377698	USAECOM	70					100%		2.7864		2.7864
	Hybrid	Z103		377698	USAECOM	70					100%		2.7864		2.7864
	Hybrid	Z104		377699	USAECOM	70					100%		3.8837		3.8837

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Guard Receiver

PAGE 2 OF 2

DRAWING NO. Airborne Applique, 376600

TOTAL FAILURE RATE 3.28109 X10^{-5}

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C111		CKR05BX104KR	198B/1001.2	70	V	50	0	10	100%	.2	.0005	5	.0025
	Capacitor	C112		M475R-20	217A/7.6-81	70	V	20	0	12	100%	.6	.015		.0150
	Capacitor	C113		M475R-20	217A/7.6-81	70	V	20	0	12	100%	.6	.015		.0150
	Capacitor	C114		CKR05BX105KR	198B/1001.2	70	V	50	0	12	100%	.24	.0005	5	.0025
	Capacitor	C115		CKR05BX333KR	198B/1001.2	70	V	100	0	12	10%	.12	.0005	5	.0025
	Resistor	R106		RCR05G104[illegible]	199A/301.2	70	mw	125	0	1	100%	≤.1	.00024	10	.0024
	Resistor	R109		RCR05G163JS	199A/301.2	70	mw	125	0	6	100%	≤.1	.00024	10	.0024
	Resistor	R110		RCR05G393JS	199A/301.2	70	mw	125	0	1	100%	≤.1	.00024	10	.0024
	Resistor	R111		RCR05G512JS	199A/301.2	70	mw	125	0	1	100%	≤.1	.00024	10	.0024
	Resistor	R112		RCR05G182JS	199A/301.2	70	mw	125	0	≤1	100%	≤.1	.00024	10	.0024
	Resistor	R113		RCR05G150JS	199A/301.2	70	mw	125	0	20	100%	≤.1	.00024	10	.0024
	Resistor	R114		RCR05G150JS	199A/301.2	70	mw	125	0	20	100%	.16	.00032	10	.0032
	Resistor	R315		RCR05G393JS	199A/301.2	70	mw	125	0	1	100%	.16	.00032	10	.0032
	Transformer	T104	CEC		217A/7.7-9	70	w				100%		.2	10	2.0
	Diode SIZEN	CR101	RCA	1N4742	217A/7.4-11	70	w	1	0	.3	100%	.3	1.42	3	4.26
	IC	U106	RCA	CA3020	RADC IL/413	70					100%		1.0863		1.0863
	Hybrid	U105		377663	USAECOM	70					100%		4.6742		4.6742
	LSI	U107		377664	USAECOM	70					100%		3.7		3.7
	Hybrid	U109		377662*	USAECOM	70					100%		3.0364		3.0364

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Guard Audio

PAGE 1 OF 2

DRAWING NO. Airborne Applique 376600

TOTAL FAILURE RATE 18.81528 X10⁻⁵

AT _____ DEGREES CENTIGRADE

...SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or Ta	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R116		RCR05G223JS	199A/301.2	70	mw	123	0	1	80%	<.1	.00024	10	.00192
		R117		RCR05G123JS	199A/301.2	70	mw	125	0	1	80%	<.1	.00024	10	.00192
		R118		RCR05G103JS	199A/301.2	70	mw	125	0	1	80%	<.1	.00024	10	.00192
		R119		RCR05G473JS	199A/301.2	70	mw	125	0	2	100%	<.1	.00024	10	.0024
		R120		RCR05G513JS	199A/301.2	70	mw	125	0	1	1%	<.1	.00024	10	.000024
		R121		RCR05G104JS	199A/301.2	70	mw	125	0	1	100%	<.1	.00024	10	.0024
		R122		RCR05G183JS	199A/301.2	70	mw	125	0	1	100%	<.1	.00024	10	.0024
		R123		RCR05G134JS	199A/301.2	70	mw	125	0	1	90%	<.1	.00024	10	.0022

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Guard Audio

PAGE 2 OF 2

DRAWING NO. Airborne Applique, 376600

TOTAL FAILURE RATE .0015184 X10-5

AT _____ DEGREES CENTIGRADE

2 IESS ANALYSIS

ITEM # - G.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Rx	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode. Si	CR303		JAN1N4148	217A/7.4-11	.257	ma	75	0	0	100%	<.1	.227	3.5	.795
	Diode. Si	CR306		JAN1N4148	217A/7.4-11	.257	ma	75	0	0	100%	<.1	.227	3.5	.795
	Diode. Si	CR307		JAN1N4148	217A/7.4-11	.157	ma	75	1	1	100%	.013	.227	3.5	.795
	Si NPN Transistor	Q304		JAN2N2222A	217A/7.4-13	.297	ma	500	20	10	100%	.04	.255	8	2.04

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Supply

PAGE 2 OF 2

DRAWING NO. Airborne Applique, 376/00

TOTAL FAILURE RATE .4425 X10-5

AT _____ DEGREES CENTIGRADE

S SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Tamb. °C Tb	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C303		S685R-20	217A/7.6-S1	70	V	35	24	24	100%	.7	.028		.028
	Capacitor	C301		CKR05BX103KR	198B/1001.2	70	V	100	27.5	27.5	100%	.275	.0005	5	.0025
	Resistor	R301		RW80U30R1F	199A/304.2	70	W	2	0	0	100%	<.1	.0075		.0075
	Resistor	R302		RCR07G101JS	199A/301.2	70	mW	250	0	0	100%	<.1	.000024	10	.0024
	Resistor	R303		RCR05G102JS	199A/301.2	70	mW	125	5	5	100%	<.1	.0002	10	.0024
	Resistor	R304		RCR07G101JS	199A/301.2	70	mW	250	20	20	100%	<.1	.0002	10	.0024
	Resistor	R305		RCR07G392JS	199A/301.2	70	mW	125	25	25	100%	.2	.0004	10	.004
	Resistor	R306		RCR05G622JS	199A/301.2	70	mW	125	40	40	100%	.32	.0006	10	.006
	Fuse	F301	Littelfuse	4A	217A/7.12-3	70					100%		.1		.1
	Relay	K301	HI-G	[illegible]-2A-126	217A/7.10-5	70					100%	.85	.0175		.8750
	Diode SiZEN	CR301		1N5633	217A/7.4-11	.257	W	1	0	0	100%	<.1	.684	5	2.052
	Diode Si	CR302		1N4148	217A/7.4-11	.3	mW	75	0	0	100%	<.1	.255	3.5	.8925
	Diode SiZEN	CR304		1N965A	217A/7.4-11	.44	mW	400	56	56	100%	.14	1.09	3	3.27
	Diode SiZEN	CR305		1N5644	217A/7.4-11	.3	W	1	0	0	100%	<.1	.77	3	2.31
NPN	Transistor	Q301		2N3716	217A/7.4-13	.257	W	150	2	2	100%	<.1	.453	8	3.624
	Transistor	Q302		2N2219A	217A/7.4-13	.257	mW	800	2	2	100%	<.1	.3515	8	2.8120
	Transistor	Q303		2N2222A	217A/7.4-13	.257	mW	500	6.25	6.25	100%	<.1	.3515	8	2.8120
		Q302		CKR06BX105KR	198B/1001.2	70	V	50	24.5	24	100%	.48	.0035	5	.0175
		R307		RCR05G203JS	199A/301.2	70	mW	125	0	20	100%	.16	.00036	10	.0036
		R308		RCR05G203JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.0024

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Supply

PAGE 1 OF 2

DRAWING NO. Airborne Applique, 76600

TOTAL FAILURE RATE 1.88261 X10⁻⁵

AT _____ DEGREES CENTIGRADE

APPENDIX IV

HYBRID CIRCUIT AND λ_{DS} COMPUTATIONS

HYBRID MICROCIRCUIT FAILURE RATE MODEL DEFINITIONS

① $\sum_{SP}$ Failure rate due to substrate and film processing.

② A_S Area of the substrate.

③ N_C Number of conductor paths.

④ N_R Number of resistors.

⑤ N_L Number of flying leads.

⑥ N_T Number of lead terminations

⑦ N_E Total complexity

⑧ λ_C Complexity Term.

⑨ λ_{PF} Package base failure rate.

⑩ π_{PF} Package failure rate adjustment factor.

⑪ λ_{RT} Film resistor failure rate.

⑫ N_{RT} Number of film resistors of a given tolerance.

⑬ N_Z Number of monolithic integrated circuits of a given type.

⑭ λ_Z Monolithic integrated circuit failure rate.

⑮ N_Q Number of transistors of a given type.

⑯ λ_Q Transistor failure rate.

⑰ N_{CR} Number of diodes of a given type.

⑱ λ_{CR} Diode failure rate.

⑲ N_{CC} Number of chip capacitors.

⑳ λ_{CC} Failure rate for chip capacitors.

㉑ $\sum\lambda_{DC}$ N_{DC} Sum of discrete chip device failure rates.

㉒ N_{PR} Number of conventionally packaged resistors of a given type.

㉓ λ_{PR} Packaged resistor failure rate.

㉔ N_{PC} Number of coils of a given type.

㉕ λ_{PC} Coil failure rate.

㉖ $\sum\lambda_{CP}$ N_{CP} Sum of conventionally packaged device failure rates.

(27) λ_b Base failure rate.

(28) λ_H Hybrid failure rate.

(29) π_T Temperature factor.

(30) π_Q Quality factor.

(31) π_E Environmental factor.

(32) π_S Screening factor.

(33) λ_b Base failure rate.

(34) λ_H Hybrid failure rate.

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376112

COIL DRIVER

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 34 + 64 + 25 + 68.5 = 191.5$

$\lambda_C = .012$

$A_S = .5$

$A_S\lambda_C$ = ... .0060

$\lambda_{PF}\pi_{PF}$ = ... .0390

$\sum N_{RT}\lambda_{RT}$ = ... .0068

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .3210

$\sum N_{CR}\lambda_{CR}$ = ... .0630

$\sum N_{CC}\lambda_{CC}$ = ... 0

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .3840

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .4558

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .4558 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \frac{1.1395}{1.2307} \begin{Bmatrix} M - 2 \\ V - 1 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 2.2790 \\ 7.3765 \\ 6.1523 \end{Bmatrix} X.4 = \begin{Bmatrix} [illegible] \\ [illegible] \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376114

RELAY DRIVER

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 19 + 31 + 16 + 22 = 88$

$\lambda_C = .0105$

$A_S = .516$

$A_S\lambda_C$ = ... .0054

$\lambda_{PF}\pi_{PF}$ = ... .0270

$\sum N_{RT}\lambda_{RT}$ = ... .0039

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0420

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .005

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .0470

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{IR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .0732

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .1032 \left\{\begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix}\right\} = \left\{\begin{matrix} .2580 \\ .2580 \\ .2786 \end{matrix}\right\} \left\{\begin{matrix} M - 2 \\ V - 1 \\ A - 5 \end{matrix}\right\} \frac{.5100}{11.2132} \times .4 \frac{2044}{5573}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376216

TRANSMIT INPUT CONTROL

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 29 + 37 + 26 + 37 = 131$

$\lambda_C = .0115$

$A_S = 390$

$A_S\lambda_C$ = ... .0045

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0127

$\sum N_Z\lambda_Z$ = ... 1.5540

$\sum N_Q\lambda_Q$ = ... .0120

$\sum N_{CR}\lambda_{CR}$ = ... .0045

$\sum N_{CC}\lambda_{CC}$ = ... .0500

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ 1.6205

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ .....

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... 1.8777

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H =$ .0777 { M - 2.5, W - 2.5, A - 2.7 } { 4.1942, 4.1942, 4.5298 } { M - 2, V - 1, A - 5 } [illegible] X .4 [illegible]

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376261

IF Mode Switch

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 7 + 16 + 10 + 7 = 40$

$\lambda_C = .0105$

$A_S = .3074$

$A_S\lambda_C$ = ... .0032

$\lambda_{PF}\pi_{PF}$ = ... .0240

$\sum N_{RT}\lambda_{RT}$ = ... .0014

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... 0

$\sum N_{CR}\lambda_{CR}$ = ... .0030

$\sum N_{CC}\lambda_{CC}$ = ... .0250

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .0280

$\sum N_{PR}\lambda_{PT}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .0766

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

λ_H = .0766 { M - 2.5 / W - 2.5 / A - 2.7 } { .1915 / .1915 / .2068 } { M - 2 / V - 7 / A - 5 } { .3230 / 1.3705 X .4 / illegible }

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376259

12.5 MHz IF Amp

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 10 + 13 + 7 + 18 = 48$

$\lambda_C = .0105$

$A_S = .2815$

$A_S\lambda_C$ = ... .0030

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0020

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0100

$\sum N_{CR}\lambda_{CR}$ = ... .0000

$\sum N_{CC}\lambda_{CC}$ = ... .0450

$\sum\lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .0610

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ ..... .0000

$\sum\lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .0000

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum\lambda_{DC}N_{DC} + \sum\lambda_{CP}N_{CP}$ ... .1100

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

λ_H = .1100 { M = 2.5, W = 2.5, A = 2.7 } { 1.2300, 1.2400, .3932 } { M = 2, V = 1, A = 5 } { 2.5200, 0.9300, 0.5000 } X .4 = { .0220, 0.0000, 2.7000 }

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377651

R DETECTOR INTERFACE

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 21 + 27 + 16 + 26 = 90$

$\lambda_C = .0105$

$A_S = .380$

$A_S\lambda_C$ = ... .0040

$\lambda_{PF}\pi_{PF}$ = ... .0200

$\sum N_{RT}\lambda_{RT}$ = ... .0063

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0940

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0100

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .1040

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .1543

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .1543 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} .3858 \\ .3858 \\ .4166 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} .7715 \\ 2.7002 \\ 2.0830 \end{Bmatrix} X.4 = \begin{Bmatrix} .3086 \\ 1.0801 \\ .8332 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377652

Ø DETECTOR INTERFACE

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_$

$\lambda_C =$

$A_S =$

$A_S\lambda_C$ = ... .0040

$\lambda_{PF}\pi_{PF}$ = ... .0200

$\sum N_{RT}\lambda_{RT}$ = ... .0063

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0940

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0100

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .1040

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .1543

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .1543 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} .3858 \\ .3858 \\ .4166 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - T \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} .7715 \\ 2.7002 \\ 2.0830 \end{Bmatrix} X.4 = \begin{Bmatrix} .3086 \\ 1.080 \\ .8332 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377653

CURRENT CONTROL

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 45 + 122 + 26 + 455 = 238.5$

$\lambda_C = .0105$

$A_S = 1.35$

$A_S\lambda_C$ = ... .0142

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... 0

$\sum N_Z\lambda_Z$ = ... 1.8000

$\sum N_Q\lambda_Q$ = ... .0270

$\sum N_{CR}\lambda_{CR}$ = ... .0090

$\sum N_{CC}\lambda_{CC}$ = ... 0

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ 1.8360

$\sum N_{PR}\lambda_{PR}$ 1.2410

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 1.2410

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... 3.4112

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = 3.1412 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 7.8530 \\ 7.8530 \\ 8.4812 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 1 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 15.7060 \\ 54.9710 \\ 42.4062 \end{Bmatrix} X.4 = \begin{Bmatrix} 6.2824 \\ 21.9884 \\ 16.9625 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377661

WIDEBAND FILTER / DETECTOR

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 15 + 29 + 17 + 22 = 83$

$\lambda_C = .0120$

$A_S = .212$

$A_S\lambda_C$ = ... .0025

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0012

$\sum N_Z\lambda_Z$ = ... .5340

$\sum N_Q\lambda_Q$ = ... .0030

$\sum N_{CR}\lambda_{CR}$ = ... .0045

$\sum N_{CC}\lambda_{CC}$ = ... .0500

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .5915

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .6440

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .6440 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 1.6100 \\ 1.6100 \\ 1.7388 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 1 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 3.2200 \\ 11.2700 \\ 8.6940 \end{Bmatrix} \times .4 = \begin{Bmatrix} 1.2880 \\ 4.5080 \\ 3.4776 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377662

AMPLIFIER DETECTOR

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 19 + 35 + 18 + 21 = 93$

$\lambda_C = .0140$

$A_S = .215$

$A_S\lambda_C$ = ... .0030

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0095

$\sum N_Z\lambda_Z$ = ... .8194

$\sum N_Q\lambda_Q$ = ... 0

$\sum N_{CR}\lambda_{CR}$ = ... .0060

$\sum N_{CC}\lambda_{CC}$ = ... .0100

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .8354

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .2979

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .2979 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 2.2448 \\ 2.2448 \\ 2.4243 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 14.4895 \\ 15.7132 \\ 12.1216 \end{Bmatrix} X.4 = \begin{Bmatrix} 1.7954 \\ 6.2853 \\ 4.8487 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377662*

GUARD AMPLIFIER DETECTOR

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 12 + 24 + 13 + 12 = 61$

$\lambda_C = .0105$

$A_S = .215$

$A_S\lambda_C$ = ... .0023

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0060

$\sum N_Z\lambda_Z$ = ... .4960

$\sum N_Q\lambda_Q$ = ... 0

$\sum N_{CR}\lambda_{CR}$ = ... .0030

$\sum N_{CC}\lambda_{CC}$ = ... .0050

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .5040

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .5623

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .5623 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 1.4058 \\ 1.4058 \\ 1.5182 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 2.8115 \\ 9.8402 \\ 7.5910 \end{Bmatrix} X.4 = \begin{Bmatrix} 1.1246 \\ 3.9361 \\ 3.0364 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377663

AUDIO FILTER

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 14 + 31 + 12 + 22 = 79$

$\lambda_C = .012$

$A_S = .220$

$A_S\lambda_C$ = ... .0026

$\lambda_{PF}\pi_{PF}$ = ... .0200

$\sum N_{RT}\lambda_{RT}$ = ... .0070

$\sum N_Z\lambda_Z$ = ... .7560

$\sum N_Q\lambda_Q$ = ... 0

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0500

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .8060

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .8656

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .8656 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 2.1640 \\ 2.1640 \\ 2.3371 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - T \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 4.3280 \\ 15.1480 \\ 11.6855 \end{Bmatrix} X.4 \begin{matrix} 1.732 \\ 5.0532 \\ 4.6742 \end{matrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377666

Output Amplifier

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 31 + 61 + 33 + 30.5 = 155.5$

$\lambda_C = .0105$

$A_S = .504$

$A_S\lambda_C$ = ... .5145

$\lambda_{PF}\pi_{PF}$ = ... .0390

$\sum N_{RT}\lambda_{RT}$ = ... .0093

$\sum N_Z\lambda_Z$ = ... .7043

$\sum N_Q\lambda_Q$ = ... .0420

$\sum N_{CR}\lambda_{CR}$ = ... .0030

$\sum N_{CC}\lambda_{CC}$ = ... .0400

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .8693

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... 1.4422

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = 1.4422 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 3.6055 \\ 3.6055 \\ 3.8939 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - T \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 7.2110 \\ 25.2385 \\ 15.4697 \end{Bmatrix} X.4 = \begin{Bmatrix} 2.8844 \\ 10.0954 \\ 7.7279 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377667

MODULATION AMP

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 16 + 29 + 16 + 13 = 74$

$\lambda_C = .011$

$A_S = .2135$

$A_S\lambda_C$ = ... .0024

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0040

$\sum N_Z\lambda_Z$ = ... .7920

$\sum N_Q\lambda_Q$ = ... 0

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0150

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .8070

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .2274

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .8674 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 2.1625 \\ 2.1625 \\ 2.3420 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 1 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 4.3370 \\ 15.1795 \\ 11.7099 \end{Bmatrix} X.4 = \begin{Bmatrix} 1.7348 \\ 6.0718 \\ 4.6839 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377668

12.5 MHz Lim.-Disc.

$\sum_{SP}$ ..... .0300

$N_E = N_R + N_C + N_L + N_T/2$

$= 13 + 21 + 9 + 23.5 = 66.5$

$\lambda_C = .0105$

$A_S = .204$

$A_S\lambda_C$ = ... .0021

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0026

$\sum N_Z\lambda_Z$ = ... .1920

$\sum N_Q\lambda_Q$ = ... .0050

$\sum N_{CR}\lambda_{CR}$ = ... .0075

$\sum N_{CC}\lambda_{CC}$ = ... .5600

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .2645

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ ..... .4000

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .4000

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .7192

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .7192 \left\{\begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix}\right\} = \left\{\begin{matrix} 1.7980 \\ 1.7980 \\ 1.9418 \end{matrix}\right\} \left\{\begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix}\right\} = \left\{\begin{matrix} 3.5960 \\ 12.5860 \times .4 \\ 9.7090 \end{matrix}\right\} = \left\{\begin{matrix} 1.4384 \\ 5.0344 \\ 3.8837 \end{matrix}\right.$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377671

D/A CONVERTER

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 9 + 26 + 16 + 15.5 = 66.5$

$\lambda_C = .0105$

$A_S = .450$

$A_S\lambda_C$ = ... .0047

$\lambda_{PF}\pi_{PF}$ = ... .0240

$\sum N_{RT}\lambda_{RT}$ = ... .0020

$\sum N_Z\lambda_Z$ = ... .4476

$\sum N_Q\lambda_Q$ = ... .0150

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0050

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .4676

$\sum N_{PR}\lambda_{PR}$ ..... .0001

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .0001

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .5124

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .5124 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 1.2960 \\ 1.2960 \\ 1.3997 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 2.5920 \\ 9.0720 \\ 6.9985 \end{Bmatrix} \times .4 = \begin{Bmatrix} 1.0368 \\ 3.6288 \\ 2.7994 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377675

OSCILLATOR

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 3 + 10 + 7 + 7 = 27$

$\lambda_C = .014$

$A_S = .063$

$A_S\lambda_C$ = ... .0009

$\lambda_{PF}\pi_{PF}$ = ... .0200

$\sum N_{RT}\lambda_{RT}$ = ... 0

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0240

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0100

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .0340

$\sum N_{PR}\lambda_{PR}$ ..... .0003

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{FC}$ ..... .0003

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .0752

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .0752 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} .1980 \\ .1980 \\ .2030 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} 1.3760 \\ 1.3160 \\ 1.0152 \end{Bmatrix} X.4 = \begin{Bmatrix} .1504 \\ .5264 \\ .4061 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377676

VFO RF SWITCH

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 7 + 20 + 14 + 12 = 53$

$\lambda_C = .0105$

$A_S = .191$

$A_S\lambda_C$ = ... .0020

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0021

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... 0

$\sum N_{CR}\lambda_{CR}$ = ... .0075

$\sum N_{CC}\lambda_{CC}$ = ... .0350

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .0425

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ 0

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .0966

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .0966 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} .2415 \\ .2415 \\ .2608 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} = \begin{Bmatrix} .4830 \\ 1.6905 \\ 1.3041 \end{Bmatrix} X.4 = \begin{Bmatrix} .1932 \\ .6762 \\ .5216 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377677

VFO CONTROL

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 17 + 55 + 27 + 28 = 127$

$\lambda_C = .0105$

$A_S = .871$

$A_S\lambda_C$ = ... .0091

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0051

$\sum N_Z\lambda_Z$ = ... .2500

$\sum N_Q\lambda_Q$ = ... .0540

$\sum N_{CR}\lambda_{CR}$ = ... .0015

$\sum N_{CC}\lambda_{CC}$ = ... .0500

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .2455

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ .....

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ..... .97

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$ + CMOS MSI

λ_H = { M - 2.5, W - 2.5, A - 2.7 } = { .8743, M - 2, V - 1, A - 5 } { 4.7210 } X.4 = .3499 + 1.5 = 3.4499 + 1.5 = 1.8854 + 1.5

= 3.1934

= 3.4499

3.3354

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377678

PHASE DETECTOR

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 8 + 65 + 10 + 32.5 = 115.5$

$\lambda_C = .0105$

$A_S = .375$

$A_S\lambda_C$ = ... .0039

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... 0

$\sum N_Z\lambda_Z$ = ... .5736

$\sum N_Q\lambda_Q$ = ... .0330

$\sum N_{CR}\lambda_{CR}$ = ... .0045

$\sum N_{CC}\lambda_{CC}$ = ... .0300

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .6411

$\sum N_{PR}\lambda_{PR}$ ..... .0008

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .0008

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .6952

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

λ_H = .6952 $\begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix}$ $= \begin{Bmatrix} 1.7395 \\ 1.7395 \\ 1.8787 \end{Bmatrix}$ $\begin{Bmatrix} M - 2 \\ V - 1 \\ A - 5 \end{Bmatrix}$ $= \begin{Bmatrix} 3.4790 \\ 12.1705 \\ 9.3935 \end{Bmatrix}$ X .4 $= \begin{Bmatrix} 1.3916 \\ 4.8682 \\ 3.7574 \end{Bmatrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377679

VFO BUFFER

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 8 + 24 + 18 + 8 = 58$

$\lambda_C = .0105$

$A_S = .210$

$A_S\lambda_C$ = ... .0022

$\lambda_{PF}\pi_{PF}$ = ... .0200

$\sum N_{RT}\lambda_{RT}$ = ... 0

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0100

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0250

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$..... .0250

$\sum N_{PR}\lambda_{PR}$ ..... .0002

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$..... .0002

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$... .720

$\lambda_H = \lambda_b (\pi_1 \times \pi_E \times \pi_Q) \times 10^{-6}$

λ_H = .0780 {M - 2.5, W - 2.5, A - 2.7} = {.1950, .1950, .2106} {M - 2, V - 7, A - 5} = .3900 = 1.3[illegible] X.4 = .15[illegible]

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377686

PA DRIVER

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 7 + 22 + 26 + 19.5 = 74.5$

$\lambda_C = .0105$

$A_S = .266$

$A_S\lambda_C$ = ... .0030

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0014

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0720

$\sum N_{CR}\lambda_{CR}$ = ... .0322

$\sum N_{CC}\lambda_{CC}$ = ... 0

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .1100

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ ..... .0027

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .0027

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ..... .0969

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .1669 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} .4172 \\ .4172 \\ .4506 \end{Bmatrix} \begin{Bmatrix} M - 2 \\ V - 7 \\ A - 5 \end{Bmatrix} \frac{.2345}{2.2522} \times .4 = \frac{.0332}{.1623}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377687

PA FINAL

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 8 + 12 + 16 + 13 = 49$

$\lambda_C = .0105$

$A_S = .301$

$A_S\lambda_C$ = ... .0032

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0014

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0660

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0350

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ .... .1010

$\sum N_{PR}\lambda_{PR}$ ..... .3000

$\sum N_{PC}\lambda_{PC}$ 0

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .3000

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .4556

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .4556 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} 1.1390 \\ 1.1390 \\ 1.2301 \end{Bmatrix} \begin{matrix} M - 2 \\ V - 1 \\ A - 5 \end{matrix} \begin{matrix} 2.0790 \\ 7.9730 \\ 6.1550 \end{matrix} X.4 = \begin{Bmatrix} .9 \\ 3.1 \\ 2.4 \end{Bmatrix} \begin{matrix} -2 \\ -2 \\ -2 \end{matrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377688

ALC

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 19 + 31 + 24 + 20.5 = 94.5$

$\lambda_C = .0105$

$A_S = .3925$

$A_S\lambda_C$ = ... .0041

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0082

$\sum N_Z\lambda_Z$ = ... 0

$\sum N_Q\lambda_Q$ = ... .0330

$\sum N_{CR}\lambda_{CR}$ = ... 0

$\sum N_{CC}\lambda_{CC}$ = ... .0050

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .0380

$\sum N_{PR}\lambda_{PR}$ 0

$\sum N_{PC}\lambda_{PC}$ ..... .0027

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .0027

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... .0826

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

$\lambda_H = .0986 \begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix} = \begin{Bmatrix} .2465 \\ .2465 \\ .2662 \end{Bmatrix} \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} = \begin{matrix} .4930 \\ 1.7255 \\ 1.331 \end{matrix} \times .4 = \begin{matrix} .1972 \\ .6902 \\ .5324 \end{matrix}$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377698

40.5 MHz IF AMP.

$\sum_{SP}$ .... .0200

$N_E = N_R + N_C + N_L + N_T/2$

$= 10 + 13 + 7 + 18 = 48$

$\lambda_C = .0105$

$A_S = .2815$

$A_S \lambda_C =$ .... .0030

$\lambda_{PF} \pi_{PF} =$ .... .0300

$\sum N_{RT} \lambda_{RT} =$ .... .0020

$\sum N_Z \lambda_Z =$ 0

$\sum N_Q \lambda_Q =$ .... .0100

$\sum N_{CR} \lambda_{CR} =$ .... .0060

$\sum N_{CC} \lambda_{CC} =$ .... .0450

$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC}$ ..... .0610

$\sum N_{PR} \lambda_{PR}$ 0

$\sum N_{PC} \lambda_{PC}$ .... .4000

$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC}$ .... .4000?

$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP}$ ... .5160

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

λ_H = .5160 $\begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix}$ = $\begin{Bmatrix} 1.2900 \\ 1.2900 \\ 1.3932 \end{Bmatrix}$ $\begin{Bmatrix} M - 2 \\ V - T \\ A - 5 \end{Bmatrix}$ [illegible] X.4 [illegible]

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377699

40.5 MHz LIM. - [illegible]

$\sum_{SP}$ ..... .0200

$N_E = N_R + N_C + N_L + N_T/2$

= 13 + 21 + 9 + 23.5 = 66.5

λ_C = .0105

A_S = .204

$A_S\lambda_C$ = ... .0021

$\lambda_{PF}\pi_{PF}$ = ... .0300

$\sum N_{RT}\lambda_{RT}$ = ... .0026

$\sum N_Z\lambda_Z$ = ... .1920

$\sum N_Q\lambda_Q$ = ... .0050

$\sum N_{CR}\lambda_{CR}$ = ... .0075

$\sum N_{CC}\lambda_{CC}$ = ... .0600

$\sum \lambda_{DC}N_{DC} = \sum N_Z\lambda_Z + \sum N_{CR}\lambda_{CR} + \sum N_{CC}\lambda_{CC}$ ..... .2045

$\sum N_{PR}\lambda_{PR}$ ..... -

$\sum N_{PC}\lambda_{PC}$ ..... .4000

$\sum \lambda_{CP}N_{CP} = \sum N_{PR}\lambda_{PT} + N_{PC}\lambda_{PC}$ ..... .4000

$\lambda_b = \sum_{SP} + A_S\lambda_C + \lambda_{PF}\pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC}N_{DC} + \sum \lambda_{CP}N_{CP}$ ... [illegible]

$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$

λ_H = [illegible] { M - 2.5 / W - 2.5 / A - 2.7 } [illegible] { M - 2 / V - T / A - 5 } [illegible] X.4 = [illegible]

APPENDIX V

RADC AND MIL-HDBK-217B COMPUTATIONS

MIXER FAILURE RATE - MD6 ($\times 10^{-6}$)
217A (7.4.11, 7.7.9)

8 SI Diodes T_N = .457 (MP, V) , .486 (A)
2 Transformers

MP	(8)	(.371)	(1.5)	+	(.2)	(1.5)	(2)	= 5.06
V	(8)	(.371)	(3.5)	+	(.2)	(10)	(2)	= 14.38
A	(8)	(.395)	(3.5)	+	(.2)	(10)	(2)	= 15.05

CRYSTAL FILTER FAILURE RATE ($\times 10^{-6}$)
217A (7.12-3, 7.7.9)

376252, 376251, 376652
4 Crystals
2 Transformers

MP	(4)	(.02)	+	(2)	(.2)	(1.5)	=	.68
V	(4)	(.02)	+	(2)	(.2)	(10)	=	4.08
A	(4)	(.02)	+	(2)	(.2)	(10)	=	4.08

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT TCXO - 376153

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \ _1\}\{\ \ _2\}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ \ _3 - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \begin{Bmatrix}(M) & .0106\\ (V) & .0108\\ (A) & .0109\end{Bmatrix}_4 \{4\}\{\ \ _5\}\{\pi_{P_C}\}\{2\}_6 \begin{Bmatrix}(M) & 2\\ (V) & 7\\ (A) & 5\end{Bmatrix}_7 + \underset{(\Sigma_M)}{0} = \begin{Bmatrix}(M) & .3456\\ (V) & 1.2096\\ (A) & .9656\end{Bmatrix}$$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT Divide By 20 - 376152

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \}_1\{\ \}_2/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ \}_3 - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \begin{Bmatrix}(M)\\(V)\\(A)\end{Bmatrix}_4 \{5\}\{2\}_{\pi_{P_C}}\{2\}_6 \begin{Bmatrix}(M) & 2\\(V) & 7\\(A) & 5\end{Bmatrix}_7 + \underset{(\Sigma_M)}{\square} = \begin{Bmatrix}(M)\\(V)\\(A)\end{Bmatrix}$$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377656

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ _1\ \}\{\ _2\ \}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ _3\ - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \begin{Bmatrix}(M)\ .0108\\(V)\ .0108\\(A)\ .012\overset{4}{07}\end{Bmatrix}\{\ _5\ 7\}\{\ _6\ 2\}\pi_{P_C}\{\ _7\ 2\}\begin{Bmatrix}(M)\ 2\\(V)\ 7\\(A)\ 5\end{Bmatrix} + \underset{(\Sigma_M)}{0} = \begin{Bmatrix}(M)\ .6045\\(V)\ 2.1168\\(A)\ 1.6898\end{Bmatrix}$$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377657

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$\Sigma_M = \{.023\}\{\ \ _{1}\ \ \}\{\ \ _{2}\ \ \}/2500 = \quad , A_S \geq 2500$

$= 0, \quad A_S < 2500$

$\pi_{P_C} = 2 + \{\ \ _{3}\ \ - 14\}\{.04\} = \quad , N > 14$

$= 2, \quad N \leq 14$

$\lambda_{MC_X} = \begin{Bmatrix}(M)\ .0108\\(V)\ .0108\\(A)\ .01207\end{Bmatrix}_4 \{1\}_5 \{2\}_{\pi_{P_C}} \{2\}_6 \begin{Bmatrix}(M)\ 2\\(V)\ 7\\(A)\ 5\end{Bmatrix}_7 + \underset{(\Sigma_M)}{0} = \begin{Bmatrix}(M)\ .9504\\(V)\ 3.3264\\(A)\ 2.6554\end{Bmatrix}$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377658

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

Σ_M = {.023}{ }{ }{ }/2500 = , $A_S \geq 2500$
(1) (2)

= 0, $A_S < 2500$

π_{P_C} = 2 + { } - 14}{ .04} = , $N > 14$
(3)

= 2, $N \leq 14$

λ_{MC_X} = {(M) .0108 / (V) .0108 / (A) .01207} (4) { 7 } (5) { 2 } (π_{P_C}) { 2 } (6) {(M) 2 / (V) 7 / (A) 5} (7) + 0 (Σ_M) = {(M) .6045 / (V) 2.1168 / (A) 1.6898}

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377659

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \}_1\{\ \}_2/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ \cdot 14\}_3\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \begin{Bmatrix}(M) & .0108 \\ (V) & .0108 \\ (A) & .01207\end{Bmatrix}_4 \{8\}_5 \{2\}_{\pi_{P_C}} \{2\}_6 \begin{Bmatrix}(M) & 2 \\ (V) & 7 \\ (A) & 5\end{Bmatrix}_7 + \underset{(\Sigma_M)}{0} = \begin{Bmatrix}(M) & .6912 \\ (V) & 2.4192 \\ (A) & 1.9312\end{Bmatrix}$$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT MC 14528AL

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \ _1\ \ \}\{\ \ _2\ \ \}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ _3^{16} - 14\}\{.04\} = 2.08 \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \left|\begin{matrix}\cancel{(i)}\\(V)\ .0108\\\cancel{(A)}\end{matrix}\right|\{\ _4^4\}\{\ _5^{2.08}\ (\pi_{P_C})\}\{\ _6^2\}\left|\begin{matrix}\cancel{(M)}\\(V)\ 7\\\cancel{(A)}\end{matrix}\right|_7 + \underset{(\Sigma_M)}{0} = \left|\begin{matrix}\cancel{(M)}\\(V)\ 1.258\\\cancel{(A)}\end{matrix}\right|$$

Form 2675

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT CA3020

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

Σ_M = {.023}{ }{ }{ }/2500 = , $A_S \geq 2500$
(1) (2)

= 0, $A_S < 2500$

π_{P_C} = 2 + { } - 14}{ .04} = , $N > 14$
(3)

= 2, $N \leq 14$

λ_{MC_X} = { (M) / (V) / (A) .0120 } { 6 } { 1.5 } { 2 } { (M) / (V) / (A) 5 } + ( ) = { (M) / (V) / (A) .0826 }
(4) (5) π_{P_C} (6) (7) (Σ_M)

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT MC1590G

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\pi_M = \{.023\}\{\ _1\ \}\{\ _2\ \}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ _3\ - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \begin{Bmatrix}(M)\\(V)\\(A)\ .0[illegible]\end{Bmatrix}_4 \{\ _5\ \}\{\pi_{P_C}\}\{\ _6\ \}\begin{Bmatrix}(M)\\(V)\\(A)\end{Bmatrix}_7 + \overset{\frown}{(\Sigma_M)} = \begin{Bmatrix}(M)\\(V)\\(A)\ 1.6[illegible]\end{Bmatrix}$$

Form 20.5

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT uA 741 AND uA 726 AND UC 4250

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metallization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \ _1\}\{\ \ _2\}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ \ _3 - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \begin{Bmatrix}(M)\\(V)\\(A)\end{Bmatrix} .0044_4 \{\ \ _5\}\{2\}\pi_{P_C}\{.5_6\}\begin{Bmatrix}(M)\\(V)\\(A)\end{Bmatrix}_7 + (\Sigma_M) = \begin{Bmatrix}(M)\\(V)\\(A)\end{Bmatrix} \ldots$$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT ua 749

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \ 1\ \ \}\{\ \ 2\ \ \}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ \ 3\ \ - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \left\{\begin{matrix}(M)\\(V)\\(A)\end{matrix}\right. \underset{4}{.0044} \left.\right\}\{9.4\}\{\underset{5}{\pi_{P_C}}\}\{\underset{6}{.5}\}\left\{\begin{matrix}(M)\\(V)\\(A)\end{matrix}\right. \underset{7}{.5} \left.\right\} + \underset{(\Sigma_M)}{C} = \left\{\begin{matrix}(M)\\(V)\\(A)\end{matrix}\right. .0022 \left.\right\}$$

Form 2675

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT CA3078

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

Σ_M = {.023}{ 1 }{ 2 }/2500 = , $A_S \geq 2500$

= 0, $A_S < 2500$

π_{P_C} = 2 + { 3 - 14}{ .04} = , N > 14

= 2, $N \leq 14$

λ_{MC_X} = {(M) (V) (A) 4} { 5 } π_{P_C} { 6 } {(M) (V) (A) 7} + (Σ_M) = {(M) (V) (A)}

Form 2675

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT CA3026 And 3018

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

$$\Sigma_M = \{.023\}\{\ \ _1\ \ \}\{\ \ _2\ \ \}/2500 = \quad , A_S \geq 2500$$

$$= 0, \quad A_S < 2500$$

$$\pi_{P_C} = 2 + \{\ \ _3\ \ - 14\}\{.04\} = \quad , N > 14$$

$$= 2, \quad N \leq 14$$

$$\lambda_{MC_X} = \left\{\begin{matrix}(M)\\(V)\\(A)\end{matrix}\right. .0044 \left.\right\}\{4\}\{.2\}\{\ \ _5\ \ \}\{15\}\left\{\begin{matrix}(M)\\(V)\\(A)\end{matrix}\right. .5 \left.\right\} + \underset{(\Sigma_M)}{\quad} = \left\{\begin{matrix}(M)\\(V)\\(A)\end{matrix}\right. .26 \left.\right\}$$

π_{P_C} (4, 6, 7)

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT μA 722

1 A_S (Area of Circuit in Square Mils)
2 Number of Layers of Metalization
3 N (Number of Package Leads)
4 π_b (Base Failure Rate)
5 π_C (Complexity Factor)
6 π_Q (Quality Factor)
7 π_E (Environmental Factor)

Σ_M = {.023}{ }{ }{ }/2500 = , $A_S \geq 2500$
(1) (2)

= 0, $A_S < 2500$

π_{P_C} = 2 + {2.4 - 14}{.04} = 2.4 , N > 14
(3)

= 2, $N \leq 14$

λ_{MC_X} = {(M) (V) (A) .0044}{6}{2.4}{15}{(M) (V) (A) .5} + 0 = {(M) (V) (A) .0752}
(4) (5) π_{P_C} (6) (7) (Σ_M)